

IDENTIFICATION

Product Code: MAINDEC-8/I-D01B-D
Product Name: Instruction Test 1
Date Created: March 25, 1968
Maintainer: Diagnostic Group
Author: M. Horowitz

1. ABSTRACT

This is a diagnostic program for testing the AND, TAD, and OPERATE instructions of the PDP-8I ONLY.

2. REQUIREMENTS

2.1 Equipment

A PDP-8I equipped with Teletype.

2.2 Storage

This program uses locations 0000-4354. The Binary Loader must be stored in the last memory page.

2.3 Preliminary Programs

3. LOADING PROCEDURE

3.1 Method

The standard Binary Loader is used.

4. STARTING PROCEDURE

4.1 Control Switch Settings

SR = 7777

4.2 Starting Address

0144

4.3 Operator Action

1. Set SR to 144 and press LOAD ADDRESS.

2. Set SR to 7777 and push START.

3. Program will halt. MA=146

4. If AC \neq 0000 an error has occurred.

5. Push CONTINUE. Program will run until stopped or until an error is encountered.

5. OPERATING PROCEDURE

Same as section 4.

6. ERRORS

6.1 Error Halts and Description

See listing.

6.2 Error Recovery

If it is desired to loop on the test causing the error, replace the operate instruction preceeding the HLT with a JMP to the beginning of the test.

7. RESTRICTIONS

7.1 Starting Restrictions (None)

7.2 Operating Restrictions

The interrupt is enabled during program operation. Any device, attached to the machine, which might cause spurious interrupts must be disabled.

8. MISCELLANEOUS

8.1 Execution Time

13 program loops per second.

9. PROGRAM DESCRIPTION

The program consists of many individual tests. In most cases each test checks only one function and uses previously tested functions as a basis for the test. The program counter action is strictly sequential except for SKIPS. The only JMP instructions used are at the end of the program.

The sequence of testing is as follows:

1. Test all operate functions individually except for rotates.
2. Test TAD instruction.
3. Test ROTATE functions.
4. Group 1 operate instruction test. All possible combinations.

5. Group 2 operate instruction test. All possible combinations.

6. Test AND instruction.

The Teletype bell rings after each 128 program loops.

10. LISTING

/INSTRUCTION TEST - 1
/TAPE 1

0000 0000
0001 0001
0002 0002
0003 0003
0004 0000
0005 0000
0006 7402
0007 7000
0010 0000

*0
0
JMP 1
0002
0003
0
0000
HALT, HLT
NOOP, NOP
0

/CONSTANTS AND VARIABLES

0020 0000
0021 0001
0022 0002
0023 0004
0024 0010
0025 0020
0026 0040
0027 0100
0030 0200
0031 0400
0032 1000
0033 2000
0034 4000
0035 7776
0036 7775
0037 7773
0040 7767
0041 7757
0042 7737
0043 7677
0044 7577
0045 7377
0046 6777
0047 5777
0050 3777
0051 7777
0052 5252
0053 2525
0054 6000
0055 7000
0056 7400
0057 7600
0060 7740
0061 7760
0062 7770
0063 7774
0064 0003

*20
K0000, 0000
K0001, 0001
K0002, 0002
K0004, 0004
K0010, 0010
K0020, 0020
K0040, 0040
K0100, 0100
K0200, 0200
K0400, 0400
K1000, 1000
K2000, 2000
K4000, 4000
K7776, 7776
K7775, 7775
K7773, 7773
K7767, 7767
K7757, 7757
K7737, 7737
K7677, 7677
K7577, 7577
K7377, 7377
K6777, 6777
K5777, 5777
K3777, 3777
K7777, 7777
K5252, 5252
K2525, 2525
K6000, 6000
K7000, 7000
K7400, 7400
K7600, 7600
K7740, 7740
K7760, 7760
K7770, 7770
K7774, 7774
K0003, 0003

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0065	0007	K0007,	0007
0066	0067	K0067,	0067
0067	0017	K0017,	0017
0070	0037	K0037,	0037
0071	0077	K0077,	0077
0072	0177	K0177,	0177
0073	0377	K0377,	0377
0074	0777	K0777,	0777
0075	1777	K1777,	1777
0076	7700	K7700,	7700

0144		*144	
0144	1051	/TAD,CLA,HLT,TEST	
0145	7200	START, TAD K7777	
0146	7402	CLA	/AC SHOULD=0
		HLT	/SET SR TO 7777, CONTINUE
0147	7410	/SKIP TEST	
0150	7402	SKP	
		HLT	/SKP FAILED
0151	7200	/SEA TEST 1	
0152	7440	CLA	
0153	7402	SEA	/SEA SHOULD HAVE SKIPPED
		HLT	/AC SHOULD EQUAL ZERO
0154	7450	SNA	
0155	7410	SKP	
0156	7402	HLT	/SNA SHOULD NOT HAVE SKIPPED
			/AC SHOULD EQUAL ZERO
0157	7200	/SEA TEST 2	
0160	1034	CLA	
0161	7440	TAD K4000	
0162	7410	SEA	
0163	7402	SKP	/SEA SHOULD NOT HAVE SKIPPED
		HLT	/AC SHOULD EQUAL 4000
0164	7450	SNA	
0165	7402	HLT	/SNA SHOULD HAVE SKIPPED
			/AC SHOULD EQUAL 4000
0166	7200	/SEA TEST 3	
0167	1033	CLA	
0170	7440	TAD K2000	
0171	7410	SEA	
0172	7402	SKP	/SEA SHOULD NOT HAVE SKIPPED
		HLT	/AC SHOULD EQUAL 2000
0173	7450	SNA	
0174	7402	HLT	/SNA SHOULD HAVE SKIPPED
0175	7000	NOP	/AC SHOULD EQUAL 2000
0176	7000	NOP	
0177	7000	NOP	

0200		*200		
		/SZA TEST 4		
0200	7200	CLA		
0201	1032	TAU	K1000	
0202	7440	SZA		
0203	7410	SKP		
0204	7402	HLT		/SZA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 1000
0205	7450	SNA		
0206	7402	HLT		/SNA SHOULD HAVE SKIPPED
				/AC SHOULD EQUAL 10000
		/SZA TEST 5		
0207	7200	CLA		
0210	1031	TAU	K0400	
0211	7440	SZA		
0212	7410	SKP		
0213	7402	HLT		/SZA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 0400
0214	7450	SNA		
0215	7402	HLT		/SNA SHOULD HAVE SKIPPED
				/AC SHOULD EQUAL 0400
		/SZA TEST 6		
0216	7200	CLA		
0217	1030	TAU	K0200	
0220	7440	SZA		
0221	7410	SKP		
0222	7402	HLT		/SZA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 0200
0223	7450	SNA		
0224	7402	HLT		/SNA SHOULD HAVE SKIPPED
				/AC SHOULD EQUAL 0200
		/SZA TEST 7		
0225	7200	CLA		
0226	1027	TAU	K0100	
0227	7440	SZA		
0230	7410	SKP		
0231	7402	HLT		/SZA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 0100
0232	7450	SNA		
0233	7402	HLT		/SNA SHOULD HAVE SKIPPED
				/AC SHOULD EQUAL 0100

		/SEA TEST 8		
0234	7200	CLA		
0235	1026	TAD	K0040	
0236	7440	SEA		
0237	7410	SKP		
0240	7402	HLT		/SEA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 0040
0241	7450	SNA		
0242	7402	HLT		/SNA SHOULD HAVE SKIPPED
				/AC SHOULD EQUAL 0040
		/SEA TEST 9		
0243	7200	CLA		
0244	1025	TAD	K0020	
0245	7440	SEA		
0246	7410	SKP		
0247	7402	HLT		/SEA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 0020
0250	7450	SNA		
0251	7402	HLT		/SNA SHOULD HAVE SKIPPED
				/AC SHOULD EQUAL 0020
		/SEA TEST 10		
0252	7200	CLA		
0253	1024	TAD	K0010	
0254	7440	SEA		
0255	7410	SKP		
0256	7402	HLT		/SEA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 0010
0257	7450	SNA		
0260	7402	HLT		/SNA SHOULD HAVE SKIPPED
				/AC SHOULD EQUAL 0010
		/SEA TEST 11		
0261	7200	CLA		
0262	1023	TAD	K0004	
0263	7440	SEA		
0264	7410	SKP		
0265	7402	HLT		/SEA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 0004
0266	7450	SNA		
0267	7402	HLT		/SNA SHOULD HAVE SKIPPED
				/AC SHOULD EQUAL 0004

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0270 7200
0271 1022
0272 7440
0273 7410
0274 7402

0275 7450
0276 7402

0277 7200
0300 1021
0301 7440
0302 7410
0303 7402

0304 7450
0305 7402

0306 7200
0307 1050
0310 7510
0311 7402

0312 7200
0313 1034
0314 7510
0315 7410
0316 7402

0317 7200
0320 1050
0321 7500
0322 7410
0323 7402

/SEA TEST 12
CLA
TAU K0002
SEA
SKP
HLT

/SEA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0002

SNA
HLT

/SNA SHOULD HAVE SKIPPED
/AC SHOULD EQUAL 0002

/SEA TEST 13
CLA
TAU K0001
SEA
SKP
HLT

/SEA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0001

SNA
HLT

/SNA SHOULD HAVE SKIPPED
/AC SHOULD EQUAL 0001

/SPA TEST 1
CLA
TAU K3777
SPA
HLT

/SPA SHOULD HAVE SKIPPED
/AC SHOULD EQUAL 3777

/SPA TEST 2
CLA
TAU K4000
SPA
SKP
HLT

/SPA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 4000

/SMA TEST 1
CLA
TAU K3777
SMA
SKP
HLT

/SMA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 3777
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0324	7200	/SMA TEST 2		
0325	1034		CLA	
0326	7900		TAU K4000	
0327	7402		SMA	
			HLT	/SMA SHOULD HAVE SKIPPED
				/AC SHOULD EQUAL 4000
0330	7200	/CMA TEST 1		
0331	1051		CLA	
0332	7040		TAU K7777	
0333	7440		CMA	
0334	7402		SZA	
			HLT	/CMA DID NOT COMPLEMENT AC
				/AC SHOULD EQUAL 0000
0335	7200	/CMA = TAU TEST 1		
0336	1053		CLA	
0337	7040		TAU K2525	
0340	7400		CMA	
0341	7402		SNA	
			HLT	/TAU OR CMA ERROR
				/AC SHOULD EQUAL 5252
0342	1053		TAU K2525	
0343	7040		CMA	
0344	7440		SZA	
0345	7402		HLT	/TAU OR CMA ERROR
				/AC SHOULD EQUAL 0000
0346	7200	/CMA = TAU TEST 2		
0347	1052		CLA	
0350	7040		TAU K5252	
0351	7450		CMA	
0352	7402		SNA	
			HLT	/TAU OR CMA ERROR
				/AC SHOULD EQUAL 2525
0353	1052		TAU K5252	
0354	7040		CMA	
0355	7440		SZA	
0356	7402		HLT	/TAU OR CMA ERROR
				/AC SHOULD EQUAL 0000

0357	7200	/CMA = TAD TEST 3	
0360	1051	CLA	
0361	7040	TAD K7777	
0362	7440	CMA	
0363	7402	SZA	
		HLT	/TAD OR CMA ERROR
			/AC SHOULD EQUAL 0000
0364	7200	/IAC TEST 1	
0365	7001	CLA	
0366	7440	IAC	
0367	7410	SZA	
0370	7402	SKP	
		HLT	/IAC DID NOT INCREMENT
			/AC SHOULD EQUAL 0001
0371	7200	/IAC TEST 2	
0372	1051	CLA	
0373	7001	TAD K7777	
0374	7440	IAC	
0375	7402	SZA	
		HLT	/IAC DID NOT INCREMENT
			/AC SHOULD EQUAL 0000
0376	7000	NOP	
0377	7000	NOP	
	0400		
0400	7200	*400	
0401	1063	/IAC TEST 3	
0402	7001	CLA	
0403	7001	TAD K7774	
0404	7001	IAC	
0405	7001	IAC	
0406	7440	IAC	
0407	7402	SZA	
		HLT	/IAC NOT INCREMENTING
			/AC SHOULD EQUAL 0000
0410	7200	/SZL TEST 1	
0411	7100	CLA	
0412	7004	CLL	/CLEAR LINK
0413	7430	RAL	/CLEAR LINK SAFETY
0414	7402	SZL	
		HLT	/SZL SHOULD HAVE SKIPPED
			/LINK SHOULD EQUAL ZERO

		/SZL TEST 2	
0415	7200	CLA	
0416	7100	CLL	/CLEAR LINK
0417	7020	CML	/COMPLEMENT LINK
0420	1034	TAU K4000	
0421	7004	RAL	/SET LINK SAFETY
0422	7430	SZL	
0423	7410	SKP	
0424	7402	HLT	/SZL SHOULD NOT HAVE SKIPPED /LINK SHOULD EQUAL ONE
		/SNL TEST 1	
0425	7200	CLA	
0426	7100	CLL	/CLEAR LINK
0427	7004	RAL	/CLEAR LINK SAFETY
0430	7420	SNL	
0431	7410	SKP	
0432	7402	HLT	/SNL SHOULD NOT HAVE SKIPPED /LINK SHOULD EQUAL ZERO
		/SNL TEST 2	
0433	7200	CLA	
0434	7100	CLL	/CLEAR LINK
0435	7020	CML	/COMPLEMENT LINK
0436	1034	TAU K4000	
0437	7004	RAL	/SET LINK SAFETY
0440	7420	SNL	
0441	7402	HLT	/SNL SHOULD HAVE SKIPPED /LINK SHOULD EQUAL ONE

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0442 7200      /CLL TEST 1
0443 1034      CLA
0444 7004      TAD K4000
0445 7420      RAL      /SET LINK
0446 5253      SNL
0446 5253      JMP CLL11      /CANNOT SET LINK WITH RAL
                                /TRY A CML
0447 7100      CLL1,  CLL
0450 7430      SZL
0451 7402      HLT      /CLL DID NOT CLEAR LINK
                                /LINK SHOULD EQUAL ONE
0452 5257      JMP ,+5
0453 7020      CLL11, CML      /SET LINK
0454 7420      SNL
0455 7402      HLT      /CANNOT SET LINK WITH
                                /RAL OR CML, CANNOT
                                /PERFORM CLL TEST 1
0456 5247      JMP CLL1

/CML TEST 1
0457 7100      CMLT1, CLL
0460 7430      SZL
0461 7402      HLT      /CLL DID NOT CLEAR LINK
0462 7020      CML
0463 7420      SNL
0464 7402      HLT      /CML DID NOT SET LINK
0465 7020      CML
0466 7430      SZL
0467 7402      HLT      /CML DID NOT RESET LINK

/CLA TEST 1 (OPERATE GROUP 2)
0470 7200      CLA
0471 1051      TAD K7777
0472 7600      7600
0473 7440      SZA
0474 7402      HLT      /CLA (7600) DID NOT CLEAR AC
                                /AC SHOULD EQUAL 0000

/OSR TEST 1
0475 7200      CLA
0476 7404      OSR
0477 7040      CMA
0500 7440      SZA
0501 7402      HLT      /OSR DID NOT SET AC TO 7777
                                /AC SHOULD=0

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/NOP TEST 1 (OPERATE GROUP 1)

0502	7200	CLA	
0503	7100	CLL	/AC AND LINK EQUAL ZERO
0504	7000	7000	/TEST INSTRUCTION
0505	7450	SNA	
0506	7430	SZL	
0507	7402	HLT	/NOP FAILURE
			/AC AND LINK SHOULD BE ZERO

/NOP TEST 2 (OPERATE GROUP 2)

0510	7200	CLA	
0511	7100	CLL	/AC AND LINK EQUAL ZERO
0512	7400	7400	/TEST INSTRUCTION
0513	7450	SNA	
0514	7430	SZL	
0515	7402	HLT	/NOP FAILURE
			/AC AND LINK SHOULD BE ZERO

/TAD TEST 1

0516	7200	CLA	
0517	1050	TAD K3777	/OPERAND 1
0520	1034	TAD K4000	/OPERAND 2
0521	7040	CMA	
0522	7440	SZA	
0523	7402	HLT	/TAD ERROR
			/AC SHOULD EQUAL 0000

/TAD TEST 2

0524	7200	CLA	
0525	1047	TAD K5777	/OPERAND 1
0526	1033	TAD K2000	/OPERAND 2
0527	7040	CMA	
0530	7440	SZA	
0531	7402	HLT	/TAD ERROR
			/AC SHOULD EQUAL 0000

/TAD TEST 3

0532	7200	CLA	
0533	1046	TAU K6777	/OPERAND 1
0534	1032	TAU K1000	/OPERAND 2
0535	7040	CMA	
0536	7440	SZA	
0537	7402	HLT	/TAD ERROR
			/AC SHOULD EQUAL 0000

/TAD TEST 4

0540	7200	CLA	
0541	1045	TAU K7377	/OPERAND 1
0542	1031	TAU K0400	/OPERAND 2
0543	7040	CMA	
0544	7440	SZA	
0545	7402	HLT	/TAD ERROR
			/AC SHOULD EQUAL 0000

/TAD TEST 5

0546	7200	CLA	
0547	1044	TAU K7577	/OPERAND 1

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0550 1030
0551 7040
0552 7440
0553 7402

TAU K0200
CMA
SEA
HLT

/OPERAND 2

/TAD ERROR
/AC SHOULD EQUAL 0000

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0554 7200      /TAD TEST 6
0555 1043      CLA
0556 1027      TAD K7677      /OPERAND 1
0557 7040      TAD K0100      /OPERAND 2
0560 7440      CMA
0561 7402      SZA
                        HLT
                        /TAD ERROR
                        /AC SHOULD EQUAL 0000

0562 7200      /TAD TEST 7
0563 1042      CLA
0564 1026      TAD K7737      /OPERAND 1
0565 7040      TAD K0040      /OPERAND 2
0566 7440      CMA
0567 7402      SZA
                        HLT
                        /TAD ERROR
                        /AC SHOULD EQUAL 0000

0570 7200      /TAD TEST 8
0571 1041      CLA
0572 1025      TAD K7757      /OPERAND 1
0573 7040      TAD K0020      /OPERAND 2
0574 7440      CMA
0575 7402      SZA
                        HLT
                        /TAD ERROR
                        /AC SHOULD EQUAL 0000

0576 7000      NOP
0577 7000      NOP
0600 0600      *600
                        /TAD TEST 9
0600 7200      CLA
0601 1040      TAD K7767      /OPERAND 1
0602 1024      TAD K0010      /OPERAND 2
0603 7040      CMA
0604 7440      SZA
0605 7402      HLT
                        /TAD ERROR
                        /AC SHOULD EQUAL 0000

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0606 7200          /TAD TEST 10
0607 1037          CLA
0610 1023          TAD K7773          /OPERAND 1
0611 7040          TAD K0004          /OPERAND 2
0612 7440          CMA
0613 7402          SZA
                                /TAD ERROR
                                /AC SHOULD EQUAL 0000
                                HLT

0614 7200          /TAD TEST 11
0615 1036          CLA
0616 1022          TAD K7775          /OPERAND 1
0617 7040          TAD K0002          /OPERAND 2
0620 7440          CMA
0621 7402          SZA
                                /TAD ERROR
                                HLT

0622 7200          /TAD TEST 12
0623 1035          CLA
0624 1021          TAD K7776          /OPERAND 1
0625 7040          TAD K0001          /OPERAND 2
0626 7440          CMA
0627 7402          SZA
                                /TAD ERROR
                                /AC SHOULD EQUAL 0000
                                HLT

0630 7200          /TAD TEST 13
0631 7100          CLA
0632 1034          CLL
0633 1034          TAD K4000          /OPERAND 1
0634 7430          TAD K4000          /OPERAND 2
0635 7440          SZA
0636 7402          SZL
                                /TAD ERROR, AC SHOULD EQUAL 0000
                                /LINK SHOULD BE EQUAL ONE,
                                HLT

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0637	7200	/TAD TEST 14	CLA	
0640	7100		CLL	
0641	1054		TAD K6000	/OPERAND 1
0642	1033		TAD K2000	/OPERAND 2
0643	7430		SZL	
0644	7440		SZA	
0645	7402		HLT	/TAD ERROR, AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ONE
0646	7200	/TAD TEST 15	CLA	
0647	7100		CLL	
0650	1055		TAD K7000	/OPERAND 1
0651	1032		TAD K1000	/OPERAND 2
0652	7430		SZL	
0653	7440		SZA	
0654	7402		HLT	/TAD ERROR, AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ONE
0655	7200	/TAD TEST 16	CLA	
0656	7100		CLL	
0657	1056		TAD K7400	/OPERAND 1
0660	1031		TAD K0400	/OPERAND 2
0661	7430		SZL	
0662	7440		SZA	
0663	7402		HLT	/TAD ERROR, AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ONE
0664	7200	/TAD TEST 17	CLA	
0665	7100		CLL	
0666	1057		TAD K7600	/OPERAND 1
0667	1030		TAD K0200	/OPERAND 2
0670	7430		SZL	
0671	7440		SZA	
0672	7402		HLT	/TAD ERROR, AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ONE
0673	7200	/TAD TEST 18	CLA	
0674	7100		CLL	
0675	1076		TAD K7700	/OPERAND 1
0676	1027		TAD K0100	/OPERAND 2
0677	7430		SZL	
0700	7440		SZA	
0701	7402		HLT	/TAD ERROR, AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ONE
0702	7200	/TAD TEST 19	CLA	
0703	7100		CLL	

0704	1060	TAU K7740	/OPERAND 1
0705	1026	TAU K0040	/OPERAND 2
0706	7430	SZL	
0707	7440	SZA	
0710	7402	HLT	/TAD ERROR, AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ONE
/TAD TEST 20			
0711	7200	CLA	
0712	7100	CLL	
0713	1061	TAU K7760	/OPERAND 1
0714	1025	TAU K0020	/OPERAND 2
0715	7430	SZL	
0716	7440	SZA	
0717	7402	HLT	/TAD ERROR, AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ONE
/TAD TEST 21			
0720	7200	CLA	
0721	7100	CLL	
0722	1062	TAU K7770	/OPERAND 1
0723	1024	TAU K0010	/OPERAND 2
0724	7430	SZL	
0725	7440	SZA	
0726	7402	HLT	/TAD ERROR AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ONE
/TAD TEST 22			
0727	7200	CLA	
0730	7100	CLL	
0731	1063	TAU K7774	/OPERAND 1
0732	1023	TAU K0004	/OPERAND 2
0733	7430	SZL	
0734	7440	SZA	
0735	7402	HLT	/TAD ERROR, AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ONE
/TAD TEST 23			
0736	7200	CLA	
0737	7100	CLL	
0740	1035	TAU K7776	/OPERAND 1
0741	1022	TAU K0002	/OPERAND 2
0742	7430	SZL	
0743	7440	SZA	
0744	7402	HLT	/TAD ERROR, AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ONE

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0745 7200
0746 7100
0747 1051
0750 1021
0751 7430
0752 7440
0753 7402

      /TAD TEST 24
      CLA
      CLL
      TAD K7777          /OPERAND 1
      TAD K0001          /OPERAND 2
      SZL
      SZA
      HLT                /TAD ERROR, AC SHOULD EQUAL 0000
                        /LINK SHOULD EQUAL ONE

      /TAD TEST 25
      CLA
      CLL
      CML
      TAD K4000          /OPERAND 1
      TAD K4000          /OPERAND 2
      SNL
      SZA
      HLT                /TAD ERROR, AC SHOULD EQUAL 0000
                        /LINK SHOULD EQUAL ZERO

      /TAD TEST 26
      CLA
      CLL
      TAD K3777          /OPERAND 1
      TAD K2000          /OPERAND 2
      TAD K2000          /OPERAND 3
      CMA
      SNL
      SZA
      HLT                /TAD ERROR, AC SHOULD EQUAL 0000
                        /LINK SHOULD EQUAL ZERO

      NOP
      NOP
      NOP
      1000

      *1000
      /TAD TEST 27
      CLA
      CLL
      TAD K5777          /OPERAND 1
      TAD K1000          /OPERAND 2
      TAD K1000          /OPERAND 3
      CMA
      SNL
      SZA                /TAD ERROR AC SHOULD EQUAL 0000
      HLT                /LINK SHOULD EQUAL ZERO

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1011	7200	/TAD TEST 28		
1012	7100	CLA		
1013	1046	CLL		
1014	1031	TAD K6777	/OPERAND 1	
1015	1031	TAD K0400	/OPERAND 2	
1016	7040	TAD K0400	/OPERAND 3	
1017	7420	CMA		
1020	7440	SNL		
1021	7402	SZA		
		HLT		/TAD ERROR, AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO
1022	7200	/TAD TEST 29		
1023	7100	CLA		
1024	1045	CLL		
1025	1030	TAD K7377	/OPERAND 1	
1026	1030	TAD K0200	/OPERAND 2	
1027	7040	TAD K0200	/OPERAND 3	
1030	7420	CMA		
1031	7440	SNL		
1032	7402	SZA		
		HLT		/TAD ERROR, AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO
1033	7200	/TAD TEST 30		
1034	7100	CLA		
1035	1044	CLL		
1036	1027	TAD K7577	/OPERAND 1	
1037	1027	TAD K0100	/OPERAND 2	
1040	7040	TAD K0100	/OPERAND 3	
1041	7420	CMA		
1042	7440	SNL		
1043	7402	SZA		
		HLT		/TAD ERROR, AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO
1044	7200	/TAD TEST 31		
1045	7100	CLA		
1046	1043	CLL		
1047	1026	TAD K7677	/OPERAND 1	
1050	1026	TAD K0040	/OPERAND 2	
1051	7040	TAD K0040	/OPERAND 3	
1052	7420	CMA		
1053	7440	SNL		
1054	7402	SZA		
		HLT		/TAD ERROR, AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO

1055	7200	/TAD TEST J2		
1056	7100	CLA		
1057	1042	CLL		
1060	1025	TAU K7737	/OPERAND 1	
1061	1025	TAU K0020	/OPERAND 2	
1062	7040	TAU K0020	/OPERAND 3	
1063	7420	CMA		
1064	7440	SNL		
1065	7402	SZA		
		HLT		
			/TAD ERROR, AC SHOULD EQUAL 0000	
			/LINK SHOULD EQUAL ZERO	
1066	7200	/TAD TEST J3		
1067	7100	CLA		
1070	1041	CLL		
1071	1024	TAU K7757	/OPERAND 1	
1072	1024	TAU K0010	/OPERAND 2	
1073	7040	TAU K0010	/OPERAND 3	
1074	7420	CMA		
1075	7440	SNL		
1076	7402	SZA		
		HLT		
			/TAD ERROR, AC SHOULD EQUAL 0000	
			/LINK SHOULD EQUAL ZERO	
1077	7200	/TAD TEST J4		
1100	7100	CLA		
1101	1040	CLL		
1102	1023	TAU K7767	/OPERAND 1	
1103	1023	TAU K0004	/OPERAND 2	
1104	7040	TAU K0004	/OPERAND 3	
1105	7420	CMA		
1106	7440	SNL		
1107	7402	SZA		
		HLT		
			/TAD ERROR, AC SHOULD EQUAL 0000	
			/LINK SHOULD EQUAL ZERO	
1110	7200	/TAD TEST J5		
1111	7100	CLA		
1112	1037	CLL		
1113	1022	TAU K7773	/OPERAND 1	
1114	1022	TAU K0002	/OPERAND 2	
1115	7040	TAU K0002	/OPERAND 3	
1116	7420	CMA		
1117	7440	SNL		
1120	7402	SZA		
		HLT		
			/TAD ERROR, AC SHOULD EQUAL 0000	
			/LINK SHOULD EQUAL ZERO	

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1121 7200
1122 7100
1123 1036
1124 1021
1125 1021
1126 7040
1127 7420
1130 7430
1131 7402

      /TAD TEST 36
      CLA
      CLL
      TAD K7775      /OPERAND 1
      TAD K0001      /OPERAND 2
      TAD K0001      /OPERAND 3
      CMA
      SNL
      SZL
      HLT
      /TAD ERROR, AC SHOULD EQUAL 0000
      /LINK SHOULD EQUAL ZERO

1132 7200
1133 7100
1134 1021
1135 7010
1136 7420
1137 7402

      /RAR TEST 1
      CLA
      CLL
      TAD K0001      /ROTATE PATTERN
      RAR
      SNL
      HLT
      /RAR FAILED, LINK DROPPED A BIT
      /LINK SHOULD EQUAL A ONE

1140 7200
1141 7100
1142 1020
1143 7010
1144 7440
1145 7402

      /RAR TEST 2
      CLA
      CLL
      TAD K0000      /ROTATE PATTERN
      RAR
      SZA
      HLT
      /RAR FAILED, AC PICKED UP A BIT
      /A ONE IN AC EQUALS THE PICKED UP BIT

1146 7200
1147 7100
1150 1020
1151 7010
1152 7430
1153 7402

      /RAR TEST 3
      CLA
      CLL
      TAD K0000      /ROTATE PATTERN
      RAR
      SZL
      HLT
      /RAL FAILED, LINK PICKED UP A BIT
      /LINK SHOULD EQUAL ZERO

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1154 7200      /RAR TEST 4
1155 7100      CLA
1156 7020      CLL
1157 1020      CML
1160 7010      TAU K0000      /ROTATE PATTERN
1161 7430      RAR
1162 7402      SZL
                        HLT
                        /RAR LINK PICKED UP A BIT
                        /LINK SHOULD EQUAL ZERO

1163 7200      /RAR TEST 5
1164 7100      CLA
1165 7020      CLL
1166 1051      CML
1167 7010      TAU K7777      /ROTATE PATTERN
1170 7040      RAR
1171 7440      CMA
1172 7402      SZA
                        HLT
                        /RAR FAILED AC DROPPED A BIT
                        /A ONE IN AC EQUALS THE DROPPED BIT

1173 7000      NOP
1174 7000      NOP
1175 7000      NOP
1176 7000      NOP
1177 7000      NOP
1200      1200

*1200
1200 7200      /RAR TEST 6
1201 7100      CLA
1202 7020      CLL
1203 1020      CML
1204 7010      TAU K0000      /ROTATE PATTERN
1205 1050      RAR
1206 7040      TAU K3777
1207 7450      CMA
1210 7430      SNA
1211 7402      SZL
                        HLT
                        /RAR FAILED AC AND LINK
                        /SHOULD EQUAL 0000

1212 7200      /RAR TEST 7
1213 7100      CLA
1214 1034      CLL
1215 7010      TAU K4000      /ROTATE PATTERN
1216 1047      RAR
1217 7040      TAU K5777
1220 7450      CMA
1221 7430      SNA
1222 7402      SZL
                        HLT
                        /RAR FAILED AC AND LINK SHOULD
                        /EQUAL 0000

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1223	7200	/RAR TEST 8	
1224	7100	CLA	
1225	1033	CLL	
1226	7010	TAU K2000	/ROTATE PATTERN
1227	1046	RAR	
1230	7040	TAU K6777	
1231	7450	CMA	
1232	7430	SNA	
1233	7402	SZL	
		HLT	/RAR FAILED AC AND LINK SHOULD /EQUAL 0000
1234	7200	/RAR TEST 9	
1235	7100	CLA	
1236	1032	CLL	
1237	7010	TAU K1000	/ROTATE PATTERN
1240	1045	RAR	
1241	7040	TAU K7377	
1242	7450	CMA	
1243	7430	SNA	
1244	7402	SZL	
		HLT	/RAR FAILED AC AND LINK SHOULD /EQUAL 0000
1245	7200	/RAR TEST 10	
1246	7100	CLA	
1247	1031	CLL	
1250	7010	TAU K0400	/ROTATE PATTERN
1251	1044	RAR	
1252	7040	TAU K7577	
1253	7450	CMA	
1254	7430	SNA	
1255	7402	SZL	
		HLT	/RAR FAILED AC AND LINK /SHOULD EQUAL 0000

1256	7200	/RAR TEST 11	
1257	7100	CLA	
1260	1030	CLL	
1261	7010	TAD K0200	/ROTATE PATTERN
1262	1043	RAR	
1263	7040	TAD K7677	
1264	7450	CMA	
1265	7430	SNA	
1266	7402	SZL	
		HLT	/RAR FAILED AC AND LINK
			/EQUAL 0000

1267	7200	/RAR TEST 12	
1270	7100	CLA	
1271	1027	CLL	
1272	7010	TAD K0100	/ROTATE PATTERN
1273	1042	RAR	
1274	7040	TAD K7737	
1275	7450	CMA	
1276	7430	SNA	
1277	7402	SZL	
		HLT	/RAR FAILED AC AND LINK
			/SHOULD EQUAL 0000

1300	7200	/RAR TEST 13	
1301	7100	CLA	
1302	1026	CLL	
1303	7010	TAD K0040	/ROTATE PATTERN
1304	1041	RAR	
1305	7040	TAD K7757	
1306	7450	CMA	
1307	7430	SNA	
1310	7402	SZL	
		HLT	/RAR FAILED AC AND LINK
			/SHOULD EQUAL 0000

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PAUSE

/INSTRUCTION TEST 1
/TAPE 2
/RAR TEST 14

1311 7200
1312 7100
1313 1025
1314 7010
1315 1040
1316 7040
1317 7450
1320 7430
1321 7402

CLA
CLL
TAD K0020
RAR
TAD K7767
CMA
SNA
SZL
HLT

/ROTATE PATTERN

/RAR FAILED AC AND LINK
/SHOULD EQUAL 0000

/RAR TEST 15

1322 7200
1323 7100
1324 1024
1325 7010
1326 1037
1327 7040
1330 7450
1331 7430
1332 7402

CLA
CLL
TAD K0010
RAR
TAD K7773
CMA
SNA
SZL
HLT

/ROTATE PATTERN

/RAR FAILED AC AND LINK
/SHOULD EQUAL 0000

/RAR TEST 16

1333 7200
1334 7100
1335 1023
1336 7010
1337 1036
1340 7040
1341 7450
1342 7430
1343 7402

CLA
CLL
TAD K0004
RAR
TAD K7775
CMA
SNA
SZL
HLT

/ROTATE PATTERN

/RAR FAILED AC AND LINK
/SHOULD EQUAL 0000

/RAR TEST 17

1344 7200
1345 7100
1346 1022
1347 7010
1350 1035
1351 7040
1352 7450
1353 7430
1354 7402

CLA
CLL
TAD K0002
RAR
TAD K7776
CMA
SNA
SZL
HLT

/ROTATE PATTERN

/RAR FAILED AC AND LINK
/SHOULD EQUAL 0000

```

1355 7200
1356 7100
1357 1021
1360 7010
1361 1051
1362 7040
1363 7450
1364 7420
1365 7402

/RAR TEST 18
CLA
CLL
TAD K0001
RAR
TAD K7777
CMA
SNA
SNL
HLT

/ROTATE PATTERN

/RAR FAILED AC AND LINK
/SHOULD EQUAL 0000

/RTR TEST 1
1366 7200
1367 7100
1370 1022
1371 7012
1372 7420
1373 7402
CLA
CLL
TAD K0002
RTR
SNL
HLT

/ROTATE PATTERN

/RTR FAILED LINK DROPPED
/A BIT LINK SHOULD EQUAL A ONE

1374 7000
1375 7000
1376 7000
1377 7000
1400
NOP
NOP
NOP
NOP

*1400
/RTR TEST 2
1400 7200
1401 7100
1402 1020
1403 7012
1404 7440
1405 7402
CLA
CLL
TAD K0000
RTR
SZA
HLT

/ROTATE PATTERN

/RTR FAILED AC PICKED UP A BIT
/A ONE IN AC EQUALS THE PICKED UP BIT

/RTR TEST 3
1406 7200
1407 7100
1410 1020
1411 7012
1412 7430
1413 7402
CLA
CLL
TAD K0000
RTR
SZL
HLT

/ROTATE PATTERN

/RTR LINK PICKED UP A BIT
/LINK SHOULD EQUAL ZERO

/RTR TEST 4
1414 7200
1415 7100
1416 7020
1417 1020
1420 7012
1421 7430
1422 7402
CLA
CLL
CML
TAD K0000
RTR
SZL
HLT

/ROTATE PATTERN

/RTR LINK PICKED UP A BIT
/LINK SHOULD EQUAL ZERO

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1423 7200      /RTR TEST 5
1424 7100      CLA
1425 7020      CLL
1426 1051      CML
1427 7012      TAO K7777      /ROTATE PATTERN
1430 7040      RTR
1431 7440      CMA
1432 7402      SNA
                        /RTR AC DROPPED A BIT A ONE IN
                        /AC EQUALS THE DROPPED BIT
                        HLT

1433 7200      /RTR TEST 6
1434 7100      CLA
1435 7020      CLL
1436 1020      CML
1437 7012      TAO K0000      /ROTATE PATTERN
1440 1047      RTR
1441 7040      TAO K5777
1442 7450      CMA
1443 7430      SNA
1444 7402      SZL
                        /RTR FAILED AC AND LINK
                        /SHOULD EQUAL 0000
                        HLT

1445 7200      /RTR TEST 7
1446 7100      CLA
1447 1034      CLL
1450 7012      TAO K4000      /ROTATE PATTERN
1451 1046      RTR
1452 7040      TAO K6777
1453 7450      CMA
1454 7430      SNA
1455 7402      SZL
                        /RTR FAILED AC AND LINK
                        /SHOULD EQUAL 0000
                        HLT

1456 7200      /RTR TEST 8
1457 7100      CLA
1460 1033      CLL
1461 7012      TAO K2000      /ROTATE PATTERN
1462 1045      RTR
1463 7040      TAO K7377
1464 7450      CMA
1465 7430      SNA
1466 7402      SZL
                        /RTR FAILED AC AND LINK
                        /SHOULD EQUAL 0000
                        HLT

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1467	7200	/RTR TEST 9	
1470	7100	CLA	
1471	1032	CLL	
1472	7012	TAU K1000	/ROTATE PATTERN
1473	1044	RTR	
1474	7040	TAU K7577	
1475	7450	CMA	
1476	7430	SNA	
1477	7402	SZL	
		HLT	/RTR FAILED AC AND LINK
			/SHOULD EQUAL 0000
1500	7200	/RTR TEST 10	
1501	7100	CLA	
1502	1031	CLL	
1503	7012	TAU K0400	/ROTAATE PATTERN
1504	1043	RTR	
1505	7040	TAU K7677	
1506	7450	CMA	
1507	7430	SNA	
1510	7402	SZL	
		HLT	/RTR FAILED AC AND LINK
			/SHOULD EQUAL 0000
1511	7200	/RTR TEST 11	
1512	7100	CLA	
1513	1030	CLL	
1514	7012	TAU K0200	/ROTATE PATTERN
1515	1042	RTR	
1516	7040	TAU K7737	
1517	7450	CMA	
1520	7430	SNA	
1521	7402	SZL	
		HLT	/RTR FAILED AC AND LINK
			/SHOULD EQUAL 0000
1522	7200	/RTR TEST 12	
1523	7100	CLA	
1524	1027	CLL	
1525	7012	TAU K0100	/ROTATE PATTERN
1526	1041	RTR	
1527	7040	TAU K7757	
1530	7450	CMA	
1531	7430	SNA	
1532	7402	SZL	
		HLT	/RTR FAILED AC AND LINK
			/SHOULD EQUAL 0000

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/RTR TEST 13
1533 7200      CLA
1534 7100      CLL
1535 1026      TAD K0040      /ROTATE PATTERN
1536 7012      RTR
1537 1040      TAD K7767
1540 7040      CMA
1541 7450      SNA
1542 7430      SZL
1543 7402      HLT      /RTR FAILED AC AND LINK
                        /SHOULD EQUAL 0000

/RTR TEST 14
1544 7200      CLA
1545 7100      CLL
1546 1025      TAD K0020      /ROTATE PATTERN
1547 7012      RTR
1550 1037      TAD K7773
1551 7040      CMA
1552 7450      SNA
1553 7430      SZL
1554 7402      HLT      /RTR FAILED AC AND LINK
                        /SHOULD EQUAL 0000

/RTR TEST 15
1555 7200      CLA
1556 7100      CLL
1557 1024      TAD K0010      /ROTATE PATTERN
1560 7012      RTR
1561 1036      TAD K7775
1562 7040      CMA
1563 7450      SNA
1564 7430      SZL
1565 7402      HLT      /RTR FAILED AC AND LINK
                        /SHOULD EQUAL 0000

/RTR TEST 16
1566 7300      CLA CLL
1567 1023      TAD K0004      /ROTATE PATTERN
1570 7012      RTR
1571 1035      TAD K7776
1572 7040      CMA
1573 7450      SNA
1574 7430      SZL
1575 7402      HLT      /RTR FAILED AC AND LINK
                        /SHOULD EQUAL 0000

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1576 7000
1577 7000
1600

NOP
NOP

*1600
/RTR TEST 17

1600 7200
1601 7100
1602 1022
1603 7012
1604 7450
1605 7420
1606 7402

CLA
CLL
TAD K0002
RTR
SNA
SNL
HLT

/ROTATE PATTERN

/RTR FAILED, AC SHOULD EQUAL
/0000, LINK SHOULD EQUAL ONE

/RTR TEST 18

1607 7200
1610 7100
1611 1021
1612 7012
1613 1050
1614 7040
1615 7450
1616 7430
1617 7402

CLA
CLL
TAD K0001
RTR
TAD K3777
CMA
SNA
SZL
HLT

/ROTATE PATTERN

/RTR FAILED, AC AND LINK
/SHOULD BE ZERO

/RAL TEST 1

1620 7200
1621 7100
1622 1034
1623 7004
1624 7430
1625 7440
1626 7402

CLA
CLL
TAD K4000
RAL
SZL
SZA
HLT

/ROTATE PATTERN

/RAL FAILED, AC SHOULD EQUAL 0000
/LINK SHOULD EQUAL ONE,

/RAL TEST 2

1627 7200
1630 7100
1631 1020
1632 7004
1633 7420
1634 7440
1635 7402

CLA
CLL
TAD K0000
RAL
SNL
SZA
HLT

/ROTATE PATTERN

/RAL FAILED, AC SHOULD EQUAL 0000
/LINK SHOULD EQUAL ZERO

1636	7200	/RAL TEST 3	
1637	7100	CLA	
1640	7020	CLL	
1641	1020	CML	
1642	7004	TAU K0000	/ROTATE PATTERN, LINK=1
1643	7430	RAL	
1644	7402	SZL	/RAL FAILURE, AC SHOULD EQUAL 0001
		HLT	/LINK SHOULD EQUAL ZERO
1645	7200	/RAL TEST 4	
1646	7100	CLA	
1647	7020	CLL	
1650	1051	CML	
1651	7004	TAU K7777	/ROTATE PATTERN, LINK=1
1652	7040	RAL	
1653	7440	CMA	
1654	7402	SZA	/RAL FAILURE, LINK SHOULD EQUAL ONE
		HLT	/AC SHOULD EQUAL 0000
1655	7200	/RAL TEST 5	
1656	7100	CLA	
1657	1033	CLL	
1660	7004	TAU K2000	/ROTATE PATTERN
1661	1050	RAL	
1662	7040	TAU K3777	
1663	7450	CMA	
1664	7430	SNA	
1665	7402	SZL	/RAL FAILURE, AC SHOULD EQUAL 0000
		HLT	/LINK SHOULD EQUAL ONE
1666	7200	/RAL TEST 6	
1667	7100	CLA	
1670	1032	CLL	
1671	7004	TAU K1000	/ROTATE PATTERN
1672	1047	RAL	
1673	7040	TAU K5777	
1674	7440	CMA	
1675	7402	SZA	/RAL FAILURE, AC SHOULD EQUAL 0000
		HLT	/LINK SHOULD EQUAL ZERO

1676	7200	/RAL TEST 7	CLA	
1677	7100		CLL	
1700	1031		TAU K0400	/ROTATE PATTERN
1701	7004		RAL	
1702	1046		TAU K6777	
1703	7040		CMA	
1704	7450		SNA	
1705	7430		SZL	
1706	7402		HLT	/RAL FAILURE, AC SHOULD EQUAL 0000 /LINK SHOULD EQUAL ZERO
1707	7200	/RAL TEST 8	CLA	
1710	7100		CLL	
1711	1030		TAU K0200	/ROTATE PATTERN
1712	7004		RAL	
1713	1045		TAU K7377	
1714	7040		CMA	
1715	7450		SNA	
1716	7430		SZL	/RAL FAILURE AC SHOULD EQUAL 0000 /LINK SHOULD EQUAL ZERO
1717	7402		HLT	
1720	7200	/RAL TEST 9	CLA	
1721	7100		CLL	
1722	1027		TAU K0100	/ROTATE PATTERN
1723	7004		RAL	
1724	1044		TAU K7577	
1725	7040		CMA	
1726	7450		SNA	
1727	7430		SZL	/RAL FAILURE AC SHOULD EQUAL 0000 /LINK SHOULD EQUAL ZERO
1730	7402		HLT	

1731	7200	/RAL TEST 10	
1732	7100	CLA	
1733	1026	CLL	
1734	7004	TAU K0040	/ROTATE PATTERN
1735	1043	RAL	
1736	7040	TAU K7677	
1737	7450	CMA	
1740	7430	SNA	
1741	7402	SZL	/RAL FAILURE AC SHOULD EQUAL 0000
		HLT	/LINK SHOULD EQUAL A ZERO
		/RAL TEST 11	
1742	7200	CLA	
1743	7100	CLL	
1744	1025	TAU K0020	/ROTATE PATTERN
1745	7004	RAL	
1746	1042	TAU K7737	
1747	7040	CMA	
1750	7450	SNA	
1751	7430	SZL	/RAL FAILURE AC SHOULD EQUAL 0000
1752	7402	HLT	/LINK SHOULD EQUAL A ZERO
		/RAL TEST 12	
1753	7200	CLA	
1754	7100	CLL	
1755	1024	TAU K0010	/ROTATE PATTERN
1756	7004	RAL	
1757	1041	TAU K7757	
1760	7040	CMA	
1761	7450	SNA	
1762	7430	SZL	/RAL FAILURE AC SHOULD EQUAL 0000
1763	7402	HLT	/LINK SHOULD EQUAL A ZERO

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1764 7200
1765 7100
1766 1023
1767 7004
1770 1040
1771 7040
1772 7450
1773 7430
1774 7402
1775 7000
1776 7000
1777 7000
      2000

2000 7200
2001 7100
2002 1022
2003 7004
2004 1037
2005 7040
2006 7450
2007 7430
2010 7402

2011 7200
2012 7100
2013 1021
2014 7004
2015 1036
2016 7040
2017 7450
2020 7430
2021 7402

2022 7200
2023 7100
2024 7020
2025 7004
2026 1035
2027 7040
2030 7450
2031 7430
2032 7402

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/RAL TEST 13
  CLA
  CLL
  TAD K0004
  HAL
  TAD K7767
  CMA
  SNA
  SZL
  HLT
  NOP
  NOP
  NOP
      *2000
/RAL TEST 14
  CLA
  CLL
  TAD K0002
  HAL
  TAD K7773
  CMA
  SNA
  SZL
  HLT
      /RAL FAILED AC SHOULD EQUAL 0000
      /LINK SHOULD EQUAL A ZERO

/RAL TEST 15
  CLA
  CLL
  TAD K0001
  HAL
  TAD K7775
  CMA
  SNA
  SZL
  HLT
      /RAL FAILED AC SHOULD EQUAL 0000
      /LINK SHOULD EQUAL ZERO

/RAL TEST 16
  CLA
  CLL
  CML
  HAL
  TAD K7776
  CMA
  SNA
  SZL
  HLT
      /RAL FAILED AC SHOULD EQUAL 0000
      /LINK SHOULD EQUAL ZERO

/ROTATE PATTERN
/ROTATE PATTERN
/ROTATE PATTERN

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2033	7200	/RTL TEST 1	
2034	7100	CLA	
2035	1033	CLL	
2036	7006	TAU K2000	
2037	7420	RTL	
2040	7402	SNL	
		HLT	/RTL LINK DROPPED A BIT
			/LINK SHOULD EQUAL A ONE
2041	7200	/RTL TEST 2	
2042	7100	CLA	
2043	1020	CLL	
2044	7006	TAU K0000	/ROTATE PATTERN
2045	7440	RTL	
2046	7402	SZA	
		HLT	/RTL AC PICKED UP A BIT
			/A ONE IN AC EQUALS THE PICKED UP
2047	7200	/RTL TEST 3	
2050	7100	CLA	
2051	1020	CLL	
2052	7006	TAU K0000	/ROTATE PATTERN
2053	7430	RTL	
2054	7402	SZL	
		HLT	/RTL LINK PICKED UP A BIT
			/LINK SHOULD EQUAL ZERO
2055	7200	/RTL TEST 4	
2056	7100	CLA	
2057	7020	CLL	
2060	1020	CML	
2061	7006	TAU K0000	/ROTATE PATTERN
2062	7430	RTL	
2063	7402	SZL	
		HLT	/RTL FAILURE, LINK PICKED UP A BIT
			/LINK SHOULD EQUAL A ZERO

2064	7200	/RTL TEST 5	CLA	
2065	7100		CLL	
2066	7020		CML	
2067	1051		TAD K7777	/ROTATE PATTERN
2070	7006		RTL	
2071	7040		CMA	
2072	7440		SZA	
2073	7402		HLT	/RTL FAILURE, DROPPED A BIT
2074	7200	/RTL TEST 6	CLA	
2075	7100		CLL	
2076	1034		TAD K4000	/ROTATE PATTERN
2077	7006		RTL	
2100	1035		TAD K7776	
2101	7040		CMA	
2102	7450		SNA	
2103	7430		SZL	
2104	7402		HLT	/RTL FAILED AC AND LINK SHOULD EQUAL 0000
2105	7200	/RTL TEST 7	CLA	
2106	7100		CLL	
2107	1033		TAD K2000	/ROTATE PATTERN
2110	7006		RTL	
2111	7450		SNA	
2112	7420		SNL	
2113	7402		HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL 0000
2114	7200	/RTL TEST 8	CLA	
2115	7100		CLL	
2116	1032		TAD K1000	/ROTATE PATTERN
2117	7006		RTL	
2120	1050		TAD K3777	
2121	7040		CMA	
2122	7450		SNA	
2123	7430		SZL	
2124	7402		HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL 0000

2125	7200	/RTL TEST 9	
2126	7100	CLA	
2127	1031	CLL	
2130	7006	TAD K0400	/ROTATE PATTERN
2131	1047	RTL	
2132	7040	TAD K5777	
2133	7450	CMA	
2134	7430	SNA	
2135	7402	SZL	
		HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL ZERO
2136	7200	/RTL TEST 10	
2137	7100	CLA	
2140	1030	CLL	
2141	7006	TAD K0200	/ROTATE PATTERN
2142	1046	RTL	
2143	7040	TAD K6777	
2144	7450	CMA	
2145	7430	SNA	
2146	7402	SZL	
		HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL 0000
2147	7200	/RTL TEST 11	
2150	7100	CLA	
2151	1027	CLL	
2152	7006	TAD K0100	/ROTATE PATTERN
2153	1045	RTL	
2154	7040	TAD K7377	
2155	7450	CMA	
2156	7430	SNA	
2157	7402	SZL	
		HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL 0000
2160	7200	/RTL TEST 12	
2161	7100	CLA	
2162	1026	CLL	
2163	7006	TAD K0040	/ROTATE PATTERN
2164	1044	RTL	
2165	7040	TAD K7577	
2166	7450	CMA	
2167	7430	SNA	
2170	7402	SZL	
		HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL 0000

2171	7000	NOP	
2172	7000	NOP	
2173	7000	NOP	
2174	7000	NOP	
2175	7000	NOP	
2176	7000	NOP	
2177	7000	NOP	
	2200		
		*2200	
		/RTL TEST 13	
2200	7200	CLA	
2201	7100	CLL	
2202	1025	TAO K0020	/ROTATE PATTERN
2203	7006	RTL	
2204	1043	TAO K7677	
2205	7040	CMA	
2206	7450	SNA	
2207	7430	SZL	
2210	7402	HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL 0000
		/RTL TEST 14	
2211	7200	CLA	
2212	7100	CLL	
2213	1024	TAO K0010	/ROTATE PATTERN
2214	7006	RTL	
2215	1042	TAO K7737	
2216	7040	CMA	
2217	7450	SNA	
2220	7430	SZL	
2221	7402	HLT	/RTL FAILED AC AND LINK SHOULD
		/RTL TEST 15	
2222	7200	CLA	
2223	7100	CLL	
2224	1023	TAO K0004	/ROTATE PATTERN
2225	7006	RTL	
2226	1041	TAO K7757	
2227	7040	CMA	
2230	7450	SNA	
2231	7430	SZL	
2232	7402	HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL 0000
		/RTL TEST 16	
2233	7200	CLA	
2234	7100	CLL	
2235	1022	TAO K0002	/ROTATE PATTERN
2236	7006	RTL	
2237	1040	TAO K7767	
2240	7040	CMA	
2241	7450	SNA	
2242	7430	SZL	
2243	7402	HLT	/RTL FAILED AC AND LINK /SHOULD EQUAL 0000

2244	7200	/RTL TEST 17	
2245	7100	CLA	
2246	1021	CLL	
2247	7006	TAD K0001	/ROTATE PATTERN
2250	1037	RTL	
2251	7040	TAD K7773	
2252	7450	CMA	
2253	7430	SNA	
2254	7402	SEL	
		HLT	/RTL FAILED AC AND LINK
			/SHOULD EQUAL 0000
2255	7200	/RTL TEST 18	
2256	7100	CLA	
2257	7020	CLL	
2260	7006	CML	
2261	1036	RTL	
2262	7040	TAD K7775	
2263	7450	CMA	
2264	7430	SNA	
2265	7402	SEL	
		HLT	/RTL FAILED AC AND LINK
			/SHOULD EQUAL 0000

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2266 7200
2267 7100
2270 7040
2271 7020
2272 7300
2273 7420
2274 7440
2275 7402

/ GROUP 1 OPERATE TEST 1
CLA /CLEAR AC
CLL /CLEAR LINK
CMA /AC EQUALS 7777
CML /LINK EQUALS ONE
CLA CLL /TEST COMBINATION
SNL
SZA
HLT /CLA CLL FAILED, LINK SHOULD BE 0
/AC SHOULD EQUAL 0000

2276 7200
2277 1053
2300 7240
2301 7040
2302 7440
2303 7402

/ GROUP 1 OPERATE TEST 2
CLA /AC EQUALS 0000
TAU K2525 /AC EQUALS 2525
CLA CMA /TEST COMBINATION
CMA
SZA
HLT /CLA CMA ERROR, AC SHOULD
/BE 0000

2304 7200
2305 7100
2306 7040
2307 7140
2310 7420
2311 7440
2312 7402

/ GROUP 1 OPERATE TEST 3
CLA
CLL
CMA /AC=7777 LINK=1
CLL CMA /TEST COMBINATION
SNL
SZA
HLT /CLL CMA FAILED, AC AND LINK
/SHOULD BE ZERO

2313 7100
2314 7020
2315 7200
2316 7040
2317 7340
2320 7040
2321 7420
2322 7440
2323 7402

/ GROUP 1 OPERATE TEST 4
CLL
CML /LINK=1
CLA
CMA /AC=7777
CLA CMA CLL /TEST COMBINATION
CMA
SNL
SZA
HLT /CLA CMA CLL FAILED, AC AND
/LINK SHOULD BE ZERO

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/GR0UP 1 OPERATE TEST 5
2324 7200      CLA
2325 7100      CLL
2326 7040      CMA      /LINK#0
2327 7220      CLA CML   /AC#7777
2330 7430      SCL      /TEST COMBINATION
2331 7440      SZA
2332 7402      HLT      /CLA CML FAILED, AC SHOULD EQUAL
                        /0000, LINK SHOULD BE A ONE

/GR0UP 1 OPERATE TEST 6
2333 7100      CLL
2334 7020      CML      /LINK#1
2335 7120      CLL CML   /TEST COMBINATION
2336 7420      SNL
2337 7402      HLT      /CLL CML FAILED
                        /LINK SHOULD BE A ONE

/GR0UP 1 OPERATE TEST 7
2340 7100      CLL      /LINK#0
2341 7120      CLL CML   /TEST COMBINATION
2342 7420      SNL
2343 7402      HLT      /CLL CML FAILED
                        /LINK SHOULD BE A ONE

/GR0UP 1 OPERATE TEST 8
2344 7120      CLL CML   /LINK#1
2345 7240      CLA CMA    /AC#7777
2346 7320      CLA CLL CML /TEST COMBINATION
2347 7430      SCL
2350 7440      SZA
2351 7402      HLT      /CLA CLL CML FAILED, LINK SHOULD
                        /BE 1, AC SHOULD BE ZERO

/GR0UP 1 OPERATE TEST 9
2352 7340      CLA CLL CMA /LINK#0, AC#7777
2353 7320      CLA CLL CML /TEST COMBINATION
2354 7430      SCL
2355 7440      SZA
2356 7402      HLT      /CLA CLL CML FAILED, LINK SHOULD
                        /BE 1, AC SHOULD BE ZERO

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2357 7340
2360 7060
2361 7430
2362 7440
2363 7402

/ GROUP 1 OPERATE TEST 10
CLA CLL CMA /AC=7777, LINK=0
CMA CML /TEST COMBINATION
SZL
SZA
HLT /CMA CML FAILED, AC SHOULD BE
/0000 LINK SHOULD EQUAL ONE,

/ GROUP 1 OPERATE TEST 11
2364 7300 CLA CLL /AC AND LINK=0
2365 1053 TAD K2525 /AC=2525
2366 7340 CLA CMA CLL /TEST COMBINATION
2367 7040 CMA
2370 7420 SNL
2371 7440 SZA
2372 7402 HLT /CLA CMA CML FAILED, AC SHOULD BE
/0000, LINK SHOULD EQUAL ZERO

2373 7000 NOP
2374 7000 NOP
2375 7000 NOP
2376 7000 NOP
2377 7000 NOP
2400

*2400
/ GROUP 1 OPERATE TEST 12
2400 7300 CLL CLA /AC AND LINK=0
2401 1053 TAD K2525 /AC=2525
2402 7160 CLL CMA CML /TEST COMBINATION
2403 1053 TAD K2525
2404 7040 CMA
2405 7430 SZL
2406 7440 SZA
2407 7402 HLT /CLL CMA CML FAILED, AC SHOULD BE
/0000, LINK SHOULD EQUAL ONE

/ GROUP 1 OPERATE TEST 13
2410 7300 CLA CLL
2411 7020 CML /AC=0000, LINK=1
2412 7160 CLL CMA CML /TEST COMBINATION
2413 7040 CMA
2414 7430 SZL
2415 7440 SZA
2416 7402 HLT /CLL CMA CML FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE ONE

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2417 7300
2420 1053
2421 7360
2422 7040
2423 7430
2424 7440
2425 7402

/GROUP 1 OPERATE TEST 14
CLA CLL
TAD K2525 /AC=2525, LINK=0
CLA CLL CMA CML /TEST COMBINATION
CMA
SEL
SZA
HLT /CLA CLL CMA CML FAILED, AC SHOULD
/BE 0000 LINK SHOULD EQUAL ONE.

/GROUP 1 OPERATE TEST 15
CLA CLL CML
TAD K5252 /AC=5252, LINK=1
CLA CLL CMA CML /TEST COMBINATION
CMA
SEL
SZA
HLT /CLA CLL CMA CML FAILED, AC SHOULD
/BE 000, LINK SHOULD EQUAL ONE

/GROUP 1 OPERATE TEST 16
CLA
TAD K2525 /AC=2525
CLA IAC /TEST COMBINATION
TAD K7776
CMA
SZA
HLT /CLA IAC FAILED
/AC SHOULD EQUAL 0000

/GROUP 1 OPERATE TEST 17
CLL CML CLA
TAD K7776 /AC=7776, LINK=1
CLL IAC /TEST COMBINATION
CMA
SNL
SZA
HLT /CLL IAC FAILED, AC AND LINK
/SHOULD EQUAL ZERO

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2453 7320 /GROUP 1 OPERATE TEST 18
2454 1053 CLA CLL CML
2455 7301 TAD K2525 /AC=2525 LINK=1
2456 1035 CLA CLL IAC /TEST COMBINATION
2457 7040 TAD K7776
2460 7420 CMA
2461 7440 SNL
2462 7402 SZA
HLT /CLA CLL IAC FAILED, AC AND LINK
/SHOULD BE ZERO

/GROUP 1 OPERATE TEST 19
2463 7300 CLA CLL /AC=0 LINK=0
2464 7041 CMA IAC /TEST COMBINATION
2465 7430 SEL
2466 7440 SZA
2467 7402 HLT /CMA IAC FAILED, AC SHOULD EQUAL
/0000, LINK SHOULD EQUAL ONE

/GROUP 1 OPERATE TEST 20
2470 7300 CLA CLL
2471 1053 TAD K2525 /AC=2525 LINK=0
2472 7241 CLA CMA IAC /TEST COMBINATION
2473 7430 SEL
2474 7440 SZA
2475 7402 HLT /CLA CMA IAC FAILED, AC SHOULD
/EQUAL 0000, LINK SHOULD BE ONE,

/GROUP 1 OPERATE TEST 21
2476 7320 CLL CLA CML /AC=0000 LINK=1
2477 1021 TAD K0001 /AC=0001
2500 7141 CLL CMA IAC /TEST COMBINATION
2501 7040 CMA
2502 7420 SNL
2503 7440 SZA
2504 7402 HLT /CLL CMA IAC FAILED, AC SHOULD BE
/0000 LINK SHOULD BE 0

/GROUP 1 OPERATE TEST 22
2505 7320 CLA CLL CML
2506 1053 TAD K2525 /AC=2525 LINK=1
2507 7341 CLA CLL CMA IAC /TEST COMBINATION
2510 7430 SEL
2511 7440 SZA
2512 7402 HLT /CLA CLL CMA IAC FAILED, AC SHOULD BE
/0000, LINK SHOULD BE ONE

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2513 7300
2514 1052
2515 7341
2516 7430
2517 7440
2520 7402

/ GROUP 1 OPERATE TEST 23
CLA CLL
TAD K5252 /AC=5252 LINK=0
CLA CLL CMA IAC /TEST COMBINATION
SZL
SZA
HLT /CLA CLL CMA IAC FAILED AC SHOULD
/BE 0000, LINK SHOULD BE ONE

/ GROUP 1 OPERATE TEST 24
CLA CLL
TAD K7776 /AC=7776 LINK=0
CML IAC /TEST COMBINATION
CMA
SZL
SZA
HLT /CML IAC FAILED AC SHOULD BE
/0000, LINK SHOULD BE ONE

/ GROUP 1 OPERATE TEST 25
CLA CLL CML
TAD K7776 /AC =7776 LINK=1
CML IAC /TEST COMBINATION
CMA
SNL
SZA
HLT /CML IAC FAILED, AC SHOULD BE
/0000, LINK SHOULD BE ZERO

/ GROUP 1 OPERATE TEST 26
CLA CLL
TAD K2525 /AC=2525 LINK=0
CLA CML IAC /TEST COMBINATION
TAD K7776
CMA
SZL
SZA
HLT /CLA CML IAC FAILED, AC SHOULD BE
/0000, LINK SHOULD EQUAL ONE

/ GROUP 1 OPERATE TEST 27
CLA CLL CML /AC=0000 LINK=1
TAD K7776 /AC=7776
CLL CML IAC /TEST COMBINATION
CMA
SZL
SZA
HLT /CLL CML IAC FAILURE, AC SHOULD BE
/0000, LINK SHOULD EQUAL ONE,

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2556 7300
2557 1035
2560 7121
2561 7040
2562 7430
2563 7440
2564 7402

/GROUP 1 OPERATE TEST 28
CLA CLL
TAD K7776 /AC=7776 LINK#0
CLL CML IAC /TEST COMBINATION
CMA
SZL
SZA
HLT /CLL CML IAC FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE ONE

/GROUP 1 OPERATE TEST 29
CLA CLL
TAD K2525 /AC=2525, LINK#0
CLA CLL CML IAC /TEST COMBINATION
TAD K7776
CMA
SZL
SZA
HLT /CLA CLL CML IAC FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE ONE

2575 7000 NOP
2576 7000 NOP
2577 7000 NOP
2600 2600

*2600
/GROUP 1 OPERATE TEST 30
CLA CLL CML
TAD K2525 /AC=2525 LINK#1
CLA CLL CML IAC /TEST COMBINATION
TAD K7776
CMA
SZL
SZA
HLT /CLA CLL CML IAC FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE ONE

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2610 7300
2611 1021
2612 7061
2613 7040
2614 7430
2615 7440
2616 7402

/ GROUP 1 OPERATE TEST 31
CLA CLL
TAD K0001 /AC=0001 LINK=0
CMA CML IAC /TEST COMBINATION
CMA
SNL
SZA
HLT /CMA CML IAC FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE ONE

/ GROUP 1 OPERATE TEST 32
CLA CLL CML
TAD K0001 /AC=0001 LINK=1
CMA CML IAC /TEST COMBINATION
CMA
SNL
SZA
HLT /CMA CML IAC FAILURE, AC SHOULD BE
/0000, LINK SHOULD BE ZERO

/ GROUP 1 OPERATE TEST 33
CLA CLL
TAD K2525 /AC=0000 LINK=0 /AC=2525
CLA CMA CML IAC /TEST COMBINATION
SNL
SNL
SZA
HLT /CLA CMA CML IAC FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE ZERO

/ GROUP 1 OPERATE TEST 34
CLA CLL CML
TAD K2525 /AC=2525 LINK=1
CLA CMA CML IAC /TEST COMBINATION
SNL
SZA
HLT /CLA CMA CML IAC FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE ONE

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2642 7300
2643 1021
2644 7161
2645 7040
2646 7430
2647 7440
2650 7402

/GROUP 1 OPERATE TEST 35
CLA CLL
TAU K0001 /AC=0001 LINK=0
CLL CMA CML IAC /TEST COMBINATION
CMA
SZL
SZA
HLT /CLL CMA CML IAC FAILED, AC SHOULD BE
/0000, LINK SHOULD BE ONE

2651 7320
2652 1021
2653 7161
2654 7040
2655 7430
2656 7440
2657 7402

/GROUP 1 OPERATE TEST 36
CLA CLL CML
TAU K0001 /AC=0001 LINK=1
CLL CMA CML IAC /TEST COMBINATION
CMA
SZL
SZA
HLT /CLL CMA CML IAC FAILED, AC SHOULD BE
/0000, LINK SHOULD BE ONE

2660 7300
2661 1053
2662 7361
2663 7420
2664 7440
2665 7402

/GROUP 1 OPERATE TEST 37
CLA CLL
TAU K2525 /AC=2525 LINK=0
CLA CLL CMA CML IAC /TEST COMBINATION
SNL
SZA
HLT /CLA CLL CMA CML IAC FAILURE AC AND
/LINK SHOULD EQUAL ZERO

2666 7360
2667 7210
2670 1050
2671 7040
2672 7420
2673 7440
2674 7402

/GROUP 1 OPERATE TEST 38
CLA CMA CLL CML /AC=7777 LINK=1
CLA RAR /TEST COMBINATION
TAU K3777
CMA
SNL
SZA
HLT /CLA RAR FAILED, LINK AND
/AC SHOULD EQUAL ZERO
```

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2675 7360 /GROUP 1 OPERATE TEST 39
2676 7204 CLA CMA CLL CML /AC=7777 LINK#1
2677 1035 CLA RAL /TEST COMBINATION
2700 7040 TAD K7776
2701 7420 CMA
2702 7440 SNL
2703 7402 SZA
HLT /CLA RAL FAILED LINK AND
/AC SHOULD EQUAL ZERO

/GROUP 1 OPERATE TEST 40
2704 7360 CLA CMA CLL CML /AC=7777 LINK #1
2705 7212 CLA RTR /TEST COMBINATION
2706 1047 TAD K5777
2707 7040 CMA
2710 7420 SNL
2711 7440 SZA
2712 7402 HLT
/CLA RTR FAILED, AC AND
/LINK SHOULD BE ZERO

/GROUP 1 OPERATE TEST 41
2713 7360 CLA CMA CLL CML /AC=7777, LINK#1
2714 7206 CLA RTL /TEST COMBINATION
2715 1036 TAD K7775
2716 7040 CMA
2717 7420 SNL
2720 7440 SZA
2721 7402 HLT
/CLA RTL FAILED, AC AND LINK
/SHOULD BE ZERO

/GROUP 1 OPERATE TEST 42
2722 7320 CLA CLL CML
2723 1026 TAD K0040 /AC=0040 LINK#1
2724 7110 CLL RAR /TEST COMBINATION
2725 1041 TAD K7757
2726 7040 CMA
2727 7420 SNL
2730 7440 SZA
2731 7402 HLT
/CLL RAR FAILED, AC AND LINK
/SHOULD BE ZERO

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/GROUP 1 OPERATE TEST 43
2732 7320 CLA CLL CML
2733 1026 TAD K0040 /AC=0040 LINK=1
2734 7104 CLL RAL /TEST COMBINATION
2735 1043 TAD K7677
2736 7040 CMA
2737 7420 SNL
2740 7440 SZA
2741 7402 HLT /CLL RAL FAILED, AC AND LINK
/SHOULD BE ZERO

/GROUP 1 OPERATE TEST 44
2742 7320 CLA CLL CML
2743 1026 TAD K0040 /AC=0040 LINK=1
2744 7112 CLL RTR /TEST COMBINATION
2745 1040 TAD K7767
2746 7040 CMA
2747 7420 SNL
2750 7440 SZA
2751 7402 HLT /CLL RTR FAILED, AC AND LINK
/SHOULD BE ZERO

/GROUP 1 OPERATE TEST 45
2752 7320 CLA CLL CML
2753 1026 TAD K0040 /AC=0040 LINK=1
2754 7106 CLL RTL /TEST COMBINATION
2755 1044 TAD K7577
2756 7040 CMA
2757 7420 SNL
2760 7440 SZA
2761 7402 HLT /CLL RTL FAILED, AC AND LINK
/SHOULD BE ZERO

/GROUP 1 OPERATE TEST 46
2762 7360 CLA CLL CML CMA /AC=7777 LINK=1
2763 7310 CLL CLA RAR /TEST COMBINATION
2764 7420 SNL
2765 7440 SZA
2766 7402 HLT /CLL CLA RAR FAILED AC AND
/LINK SHOULD BE ZERO
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2767 7360
2770 7304
2771 7420
2772 7430
2773 7402
2774 7000
2775 7000
2776 7000
2777 7000
3000

/GROUP 1 OPERATE TEST 47
CLA CMA CLL CML /AC=7777 LINK=1
CLL CLA RAL /TEST COMBINATION
SNL
SZL
HLT /CLL CLA RAL FAILED, AC AND
/ LINK SHOULD BE ZERO

NOP
NOP
NOP
NOP

*3000
/GROUP 1 OPERATE TEST 48
CLA CMA CLL CML /AC=7777 LINK=1
CLA CLL RTR /TEST COMBINATION
SNL
SEA
HLT /CLA CLL RTR FAILED, AC AND
/ LINK SHOULD BE ZERO

/GROUP 1 OPERATE TEST 49
CLA CMA CLL CML /AC=7777 LINK=1
CLA CLL RTL /TEST COMBINATION
SNL
SEA
HLT /CLA CLL RTL FAILED, AC AND
/ LINK SHOULD EQUAL ZERO

/GROUP 1 OPERATE TEST 50
CLA CLL /AC=8000 LINK=0
CML RAR /TEST COMBINATION
TAD K3777
CMA
SNL
SEA
HLT /CML RAR FAILED, AC AND LINK
/ SHOULD BE ZERO
3012 7300
3013 7030
3014 1050
3015 7040
3016 7420
3017 7440
3020 7402

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/GROUP 1 OPERATE TEST 51
3021 7300      CLA CLL      /AC=0000 LINK=0
3022 7024      CML RAL      /TEST COMBINATION
3023 1035      TAD K7776
3024 7040      CMA
3025 7420      SNL
3026 7440      SZA
3027 7402      HLT          /CML RAL FAILED, AC AND LINK
                          /SHOULD BE ZERO,

/GROUP 1 OPERATE TEST 52
3030 7300      CLA CLL      /AC=0000 LINK=0
3031 7032      CML RTR      /TEST COMBINATION
3032 1047      TAD K5777
3033 7040      CMA
3034 7420      SNL
3035 7440      SZA
3036 7402      HLT          /CML RTR FAILED, AC AND LINK
                          /SHOULD EQUAL ZERO

/GROUP 1 OPERATE TEST 53
3037 7300      CLA CLL      /AC=0000 LINK=0
3040 7026      CML RTL      /TEST COMBINATION
3041 1036      TAD K7775
3042 7040      CMA
3043 7420      SNL
3044 7440      SZA
3045 7402      HLT          /CML RTL FAILED, AC AND LINK
                          /SHOULD EQUAL ZERO

/GROUP 1 OPERATE TEST 54
3046 7300      CLA CLL
3047 1052      TAD K5252      /AC=5252 LINK=0
3050 7230      CLA CML RAR    /TEST COMBINATION
3051 1050      TAD K3777
3052 7040      CMA
3053 7420      SNL
3054 7440      SZA
3055 7402      HLT          /CLA CML RAR FAILED, AC AND

PAUSE

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*U** 8*
 /INSTRUCTION TEST - 1
 /GROUP 1 OPERATE TEST 55
 /TAPE 3

0000 7300
 0001 1052
 0002 7224
 0003 1035
 0004 7040
 0005 7420
 0006 7440
 0007 7402

CLA CLL
 TAD K5252 /AC=5252 LINK=0
 CLA CML RAL /TEST COMBINATION
 TAD K7776
 CMA
 SNL
 SZA
 HLT /CLA CML RAL FAILED, AC AND
 /LINK SHOULD BE ZERO

/GROUP 1 OPERATE TEST 56

0010 7300
 0011 1052
 0012 7232
 0013 1047
 0014 7040
 0015 7420
 0016 7440
 0017 7402

CLA CLL
 TAD K5252 /AC=5252 LINK=0
 CLA CML RTR /TEST COMBINATION
 TAD K5777
 CMA
 SNL
 SZA
 HLT /CLA CML RTR FAILED, AC AND
 /LINK SHOULD BE ZERO

/GROUP 1 OPERATE TEST 57

0020 7300
 0021 1052
 0022 7226
 0023 1036
 0024 7040
 0025 7420
 0026 7440
 0027 7402

CLA CLL
 TAD K5252 /AC=5252 LINK=0
 CLA CML RTL /TEST COMBINATION
 TAD K7775
 CMA
 SNL
 SZA
 HLT /CLA CML RTL FAILED, AC AND
 /LINK SHOULD EQUAL ZERO

/GROUP 1 OPERATE TEST 58

0030 7300
 0031 7130
 0032 7004
 0033 7430
 0034 7440
 0035 7402

CLA CLL /AC=0000 LINK=0
 CLL CML RAR /TEST COMBINATION
 RAL
 SZL
 SZA
 HLT /CLL CML RAR FAILED, AC SHOULD
 /BE 0000 LINK SHOULD BE 1

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0036 7320          /GROUP 1 OPERATE TEST 59
0037 7130          CLA CLL CML          /AC=0000 LINK=1
0040 7004          CLL CML RAR         /TEST COMBINATION
0041 7430          RAL
0042 7440          SZL
0043 7402          SZA
          HLT          /CLL CML RAR FAILED, AC SHOULD BE
          /0000, LINK SHOULD BE A ONE

0044 7300          /GROUP 1 OPERATE TEST 60
0045 7124          CLA CLL          /AC=0000 LINK=0
0046 7010          CLL CML RAL       /TEST COMBINATION
0047 7430          RAR
0050 7440          SZL
0051 7402          SZA
          HLT          /CLL CML RAL FAILED, AC SHOULD
          /EQUAL 0000, LINK SHOULD BE ONE

0052 7320          /GROUP 1 OPERATE TEST 61
0053 7124          CLA CLL CML       /AC=0000 LINK=1
0054 7010          CLL CML RAL       /TEST COMBINATION
0055 7430          RAR
0056 7440          SZL
0057 7402          SZA
          HLT          /CLL CML RAL FAILED, AC SHOULD
          /EQUAL 0000, LINK SHOULD BE ONE

0060 7300          /GROUP 1 OPERATE TEST 62
0061 7132          CLA CLL          /AC=0000 LINK=0
0062 7006          CLL CML RTR       /TEST COMBINATION
0063 7430          RTL
0064 7440          SZL
0065 7402          SZA
          HLT          /CLL CML RTR FAILED, AC SHOULD
          /BE 0000, LINK SHOULD BE ONE

```

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0066 7320
0067 7132
0070 7006
0071 7430
0072 7440
0073 7402

/ GROUP 1 OPERATE TEST 63
CLA CLL CML /AC=0000 LINK=1
CLL CML RTR /TEST COMBINATION
RTL
SZL
SZA
HLT /CLL CML RTR FAILED, AC SHOULD
/BE 0000 LINK SHOULD BE ONE,

/ GROUP 1 OPERATE TEST 64
CLA CLL /AC=0000 LINK=0
CLL CML RTL /TEST COMBINATION
RTR
SZL
SZA
HLT /CLL CML RTL FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE A ONE

/ GROUP 1 OPERATE TEST 65
CLA CLL CML /AC=0000 LINK=1
CLL CML RTL /TEST COMBINATION
RTR
SZL
SZA
HLT /CLL CML RTL FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE A ONE.

/ GROUP 1 OPERATE TEST 66
CLA CLL
TAD K5252 /AC=5252 LINK=0
CLA CLL CML RAR /TEST COMBINATION
HAL
SZL
SZA
HLT /CLA CLL CML RAR FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE ONE

NOP
NOP
NOP

*3200
/ GROUP 1 OPERATE TEST 67
CLA CLL CML
TAD K2525 /AC=2525 LINK=1
CLA CLL CML RAR /TEST COMBINATION
RAL
SZL
SZA
HLT /CLA CLL CML RAR FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE ONE

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PAGE 55

3207	7300
3210	1053
3211	7324
3212	7010
3213	7430
3214	7440
3215	7402

CLA CLL
TAU K2525 /AC=2525 LINK=0
CLA CLL CML RAL /TEST COMBINATION
RAR
SZL
SZA
MLT /CLA CLL CML RAL FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE ONE

3216	7320
3217	1052
3220	7324
3221	7010
3222	7430
3223	7440
3224	7402

```
CLA CLL CML
TAD K5252          /AC=5252 LINK=1
CLA CLL CML RAL /TEST COMBINATION
HAR
SEL
SZA
HLT               /CLA CLL CML RAL FAILED, AC SHOULD
                  /BE 0000 LINK SHOULD BE A ONE
```

3225	7300
3226	1053
3227	7332
3230	7006
3231	7430
3232	7440
3233	7402

```
CLA CLL
TAD K2525 /AC=2525 LINK=0
CLA CLL CML RTR /TEST COMBINATION
RTL
SEL
SZA
HLT /CLA CLL CML RTR FAILED, AC SHOULD
/BE 0000, LINK SHOULD BE A ONE
```

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/GROUP 1 OPERATE TEST 71
3234 7320      CLA CLL CML
3235 1052      TAU K5252          /AC=5252 LINK=1
3236 7332      CLA CLL CML RTR /TEST COMBINATION
3237 7006      RTL
3240 7430      SZL
3241 7440      SZA
3242 7402      HLT          /CLA CLL CML RTR FAILED, AC SHOULD
                          /BE 0000, LINK SHOULD BE A ONE

/GROUP 1 OPERATE TEST 72
3243 7300      CLL CLA
3244 1053      TAU K5252          /AC=5252 LINK=0
3245 7326      CLA CLL CML RTL /TEST COMBINATION
3246 7012      RTR
3247 7430      SZL
3250 7440      SZA
3251 7402      HLT          /CLA CLL CML RTL FAILED, AC SHOULD
                          /BE 0000, LINK SHOULD BE A ZERO

/GROUP 1 OPERATE TEST 73
3252 7320      CLL CLA CML
3253 1052      TAU K5252          /AC=5252 LINK=1
3254 7326      CLA CLL CML RTL /TEST COMBINATION
3255 7012      RTR
3256 7430      SZL
3257 7440      SZA
3260 7402      HLT          /CLA CLL CML RTL FAILED, AC SHOULD
                          /BE 0000, LINK SHOULD BE A ONE

/GROUP 1 OPERATE TEST 74
3261 7300      CLA CLL
3262 1051      TAU K7777          /TEST PATTERN
3263 7041      CIA              /AC EQUALS 0001
3264 1035      TAU K7776
3265 7040      CMA
3266 7420      SNL
3267 7440      SZA          /CIA FAILED AC SHOULD EQUAL 0000
3270 7402      HLT          /LINK SHOULD EQUAL A ZERO

/GROUP 1 OPERATE TEST 75
3271 7300      CLA CLL
3272 1035      TAU K7776          /TEST PATTERN
3273 7041      CIA              /AC EQUALS 0002
3274 1036      TAU K7775
3275 7040      CMA
3276 7420      SNL
3277 7440      SZA          /CIA FAILED AC SHOULD EQUAL 0000
3300 7402      HLT          /LINK SHOULD EQUAL A ZERO

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/GROUP 1 OPERATE TEST 80
3341 7300      CLA CLL
3342 1076      TAD K7700      /TEST PATTERN
3343 7041      CIA          /AC EQUALS 0100
3344 1043      TAU K7677
3345 7040      CMA
3346 7420      SNL
3347 7440      SZA
3350 7402      HLT          /CIA FAILED A SHOULD EQUAL 0000
                          /LINK SHOULD EQUAL ZERO

/GROUP 1 OPERATE TEST 81
3351 7300      CLA CLL
3352 1057      TAD K7600      /TEST PATTERN
3353 7041      CIA          /AC EQUALS 0200
3354 1044      TAU K7577
3355 7040      CMA
3356 7420      SNL
3357 7440      SZA
3360 7402      HLT          /CIA FAILED AC SHOULD EQUAL 0000
                          /LINK SHOULD EQUAL ZERO

/GROUP 1 OPERATE TEST 82
3361 7300      CLA CLL
3362 1056      TAD K7400      /TEST PATTERN
3363 7041      CIA          /AC EQUALS 0400
3364 1045      TAU K7377
3365 7040      CMA
3366 7420      SNL
3367 7440      SZA
3370 7402      HLT          /CIA FAILED AC SHOULD EQUAL 0000
                          /LINK SHOULD EQUAL ZERO
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3371 7000      NOP
3372 7000      NOP
3373 7000      NOP
3374 7000      NOP
3375 7000      NOP
3376 7000      NOP
3377 7000      NOP
      3400
*3400
/GROUP 1 OPERATE TEST 83
      CLA CLL
      TAU K7000      /TEST PATTERN
      CIA      /AC EQUALS 1000
      TAU K6777
      CMA
      SNL
      SZA
      HLT      /CIA FAILED AC SHOULD EQUAL 0000
              /LINK SHOULD EQUAL ZERO
/GROUP 1 OPERATE TEST 84
      CLA CLL
      TAU K6000      /TEST PATTERN
      CIA      /AC EQUALS 2000
      TAU K5777
      CMA
      SNL
      SZA
      HLT      /CIA FAILED AC SHOULD EQUAL 0000
              /LINK SHOULD EQUAL ZERO
/GROUP 1 OPERATE TEST 85
      CLA CLL
      TAU K4000      /TEST PATTERN
      CIA      /AC EQUALS 4000
      TAU K3777
      CMA
      SNL
      SZA
      HLT      /CIA FAILED AC SHOULD EQUUA 000
              /LINK SHOULD EQUALL ZERO
/GROUP 1 OPERATE TEST 86
      CLA CLL
      TAU K0000      /TEST PATTERN
      CIA      /AC EQUALS 0000, LINK EQUALS A ONE
      SNA
      SNL
      HLT      /CIA FAILED AC SHOULD EQUAL 0000
              /LINK SHOULD EQUAL A ONE

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3436 7340
3437 7311
3440 7430
3441 7440
3442 7402
/GROUP OPERATE TEST 87
CLA CMA CLL /AC=7777,L=0
CLA CLL IAC RAR /AC=0,L=1
SZL
SZA
HLT /ERROR: LINC NOT SET OR
/AC NOT 0

3443 7360
3444 7305
3445 7430
3446 7402
3447 7041
3450 1022
3451 7440
3452 7402
/GROUP 1 OPERATE TEST 88
CLA CMA CLL CML /AC=7777,L=1
CLA CLL IAC RAL /AC=2,L=0
SZL
HLT /ERROR: LINC NOT 0
CMA IAC
TAD K0002
SZA
HLT /ERROR AC NOT=2

3453 7320
3454 7313
3455 7430
3456 7402
3457 7500
3460 7402
/GROUP 1 OPERATE TEST 89
CLA CLL CML /AC=0,L=1
CLA CLL IAC RTR /AC=4000,L=0
SZL
HLT /ERROR: LINC NOT 0
SMA
HLT /ERROR: AC NOT 4000

3461 7360
3462 7307
3463 7430
3464 7402
3465 7041
3466 1023
3467 7440
3470 7402
/GROUP 1 OPERATE TEST 90
CLA CMA CLL CML /AC=7777,L=1
CLA CLL IAC RTL /AC=4,LINC=0
SZL
HLT /ERROR: LINC NOT 0
CMA IAC
TAD K0004
SZA
HLT /ERROR: AC NOT 4

3471 7300
3472 7331
3473 7520
3474 7402
/GROUP 1 OPERATE TEST 91
CLA CLL /AC=0, L=0
CLA CLL CML IAC RAR /AC=4000, L=1
SMA SNL
HLT /ERROR: AC NOT 4000 OR
/LINC NOT 1

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3475 7300
3476 7345
3477 7430
3500 7402
3501 7041
3502 1021
3503 7440
3504 7402

/ GROUP 1 OPERATE TEST 92
CLA CLL /AC=0,L=0
CLA CMA CLL IAC RAL /AC=0001,L=0
SZL
HLT /LINC NOT=0
CMA IAC
TAD K0001
SZA
HLT /AC NOT 0001

/ GROUP 1 OPERATE TEST 93
3505 7360 CLA CMA CLL CML /AC=7777,L=1
3506 7373 CLA CMA CLL CML IAC RTR /AC=0,L=0
3507 7440 SZA
3510 7402 HLT /ERROR!
3511 7430 SZL
3512 7402 HLT /ERROR!
```

		/GROUP 2 OPERATE TEST 1	
3513	7240	CLA CMA	/AC=7777
3514	7700	CLA SMA	/TEST COMBINATION
3515	7402	HLT	/CLA SMA DID NOT SKIP
			/AC SHOULD BE 0000
3516	7440	SZA	
3517	7402	HLT	/CLA SMA DID NOT CLEAR AC
			/AC SHOULD BE 0000
		/GROUP 2 OPERATE TEST 2	
3520	7240	CLA CMA	/AC=7777
3521	7640	CLA SZA	/TEST COMBINATION
3522	7440	SZA	
3523	7402	HLT	/CLA SZA SKIPPED OR AC NOT
			/CLEARED TO 0000
		/GROUP 2 OPERATE TEST 3	
3524	7240	CLA CMA	/AC=7777
3525	7540	SMA SZA	/TEST COMBINATION
3526	7402	HLT	/SMA SZA SHOULD HAVE SKIPPED
			/AC SHOULD EQUAL 7777
		/GROUP 2 OPERATE TEST 4	
3527	7200	CLA	/AC=0000
3530	7540	SMA SZA	/TEST COMBINATION
3531	7402	HLT	/SMA SZA SHOULD HAVE SKIPPED
			/AC SHOULD EQUAL 0000
		/GROUP 2 OPERATE TEST 5	
3532	7200	CLA	
3533	1050	TAU K3777	/AC=3777
3534	7540	SMA SZA	/TEST COMBINATION
3535	7450	SNA	
3536	7402	HLT	/SMA SZA SHOULD NOT HAVE SKIPPED
			/AC SHOULD EQUAL 3777

[illegible]

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/GROUP 2 OPERATE TEST 10
3563 7320      CLA CLL CML
3564 1053      TAU K2525      /AC=2525 LINK=1
3565 7620      CLA SNL      /TEST COMBINATION
3566 7402      HLT          /SNL DID NOT SKIP
                          /LINK SHOULD EQUAL ONE
3567 7440      SZA
3570 7402      HLT          /CLA SNL DID NOT CLEAR AC
                          /AC SHOULD EQUAL 0000

/GROUP 2 OPERATE TEST 11
3571 7300      CLA CLL      /AC=0000 LINK=0
3572 7520      SMA SNL      /TEST COMBINATION
3573 7440      SZA
3574 7402      HLT          /SMA SNL SKIPPED, AC AND LINK
                          /SHOULD EQUAL ZERO

/GROUP 2 OPERATE TEST 12
3575 7320      CLA CLL CML  /AC=0000 LINK=1
3576 7520      SMA SNL      /TEST COMBINATION
3577 7402      HLT          /SNL SHOULD HAVE SKIPPED, LINK = 1

/GROUP 2 OPERATE TEST 13
3600 7300      CLA CLL
3601 1034      TAU K4000      /AC=4000 LINK=0
3602 7520      SMA SNL      /TEST COMBINATION
3603 7402      HLT          /SMA SHOULD HAVE SKIPPED
                          /AC=4000

/GROUP 2 OPERATE TEST 14
3604 7320      CLA CLL CML
3605 1034      TAU K4000      /AC=4000 LINK=1
3606 7520      SMA SNL      /TEST COMBINATION
3607 7402      HLT          /SMA SNL SHOULD HAVE SKIPPED
                          /AC=4000 LINK=1
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/GROUP 2 OPERATE TEST 15
3610 7300      CLA CLL      /AC=0000 LINK=0
3611 7720      CLA SMA SNL   /TEST COMBINATION
3612 7440      SZA
3613 7402      HLT           /SMA SNL SKIPPED, AC AND LINK
                               /SHOULD BE ZERO

/GROUP 2 OPERATE TEST 16
3614 7320      CLA CLL CML   /AC=0000 LINK=1
3615 7720      CLA SMA SNL   /TEST COMBINATION
3616 7402      HLT           /SNL SHOULD HAVE SKIPPED
                               /LINK=1
3617 7440      SZA
3620 7402      HLT           /CLA SMA SNL DID NOT CLEAR AC
                               /AC SHOULD EQUAL ZERO

/GROUP 2 OPERATE TEST 17
3621 7300      CLA CLL
3622 1034      TAD K4000      /AC=4000 LINK=0
3623 7720      CLA SMA SNL   /TEST COMBINATION
3624 7402      HLT           /SMA SHOULD HAVE SKIPPED
                               /AC SHOULD EQUAL 0000 LINK=0
3625 7440      SZA
3626 7402      HLT           /CLA SMA SNL DID NOT CLEAR AC
                               /AC SHOULD EQUAL 0000

/GROUP 2 OPERATE TEST 18
3627 7320      CLA CLL CML
3630 1034      TAD K4000      /AC=4000 LINK=1
3631 7720      CLA SMA SNL   /TEST COMBINATION
3632 7402      HLT           /CLA SMA SNL SHOULD HAVE SKIPPED
                               /AC SHOULD BE 0000 LINK=1
3633 7440      SZA
3634 7402      HLT           /CLA SMA SNL DID NOT CLEAR AC
                               /AC SHOULD BE 0000 LINK=1

/GROUP 2 OPERATE TEST 19
3635 7300      CLA CLL      /AC=0000 LINK=0
3636 7460      SZA SNL       /TEST COMBINATION
3637 7402      HLT           /SZA SNL DID NOT SKIP
                               /AC=0000

/GRoUp 2 OPERATE TEST 20
3640 7320      CLL CLA CML   /AC=0000 LINK=1
3641 7460      SZA SNL       /TEST COMBINATION
3642 7402      HLT           /SZA SNL DID NOT SKIP
                               /AC=0000 LINK=1

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/ GROUP 2 OPERATE TEST 21
3643 7300      CLA CLL
3644 1031      TAD K0400      /AC=0400 LINK=0
3645 7460      SZA SNL      /TEST COMBINATION
3646 7450      SNA
3647 7402      HLT      /SZA SNL SKIPPED
                        /AC=0400 LINK=0

3650 7000      NOP
3651 7000      NOP
3652 7000      NOP
3653 7000      NOP
3654 7000      NOP
3600
*3600
/ GROUP 2 OPERATE TEST 22
3600 7320      CLA CLL CML
3601 1026      TAD K0040      /AC=0040 LINK=1
3602 7460      SZA SNL      /TEST COMBINATION
3603 7402      HLT      /SZA SNL SHOULD HAVE SKIPPED
                        /LINK=1

/ GROUP 2 OPERATE TEST 23
3604 7300      CLA CLL      /AC=0000 LINK=0
3605 7660      CLA SZA SNL   /TEST COMBINATION
3606 7402      HLT      /CLA SZA SNL SHOULD HAVE SKIPPED
                        /AC AND LINK SHOULD EQUAL ZERO

3607 7440      SZA
3610 7402      HLT      /CLA SZA SNL DID NOT CLEAR AC
                        /AC SHOULD BE 0000

/ GROUP 2 OPERATE TEST 24
3611 7320      CLA CLL CML   /AC=0000 LINK=1
3612 7660      CLA SZA SNL   /TEST COMBINATION
3613 7402      HLT      /CLA SZA SNL SHOULD HAVE SKIPPED
                        /AC=0000 LINK=1

3614 7440      SZA
3615 7402      HLT      /CLA SZA SNL DID NOT CLEAR AC
                        /AC SHOULD EQUAL 0000

/ GROUP 2 OPERATE TEST 25
3616 7320      CLA CLL CML
3617 1030      TAD K0200      /AC=0200 LINK=1
3620 7660      CLA SZA SNL   /TEST COMBINATION OR
3621 7402      HLT      /CLA SZA SNL SHOULD HAVE SKIPPED
                        /LINK=1

3622 7440      SZA
3623 7402      HLT      /CLA SZA SNL DID NOT CLEAR AC
                        /AC SHOULD EQUAL 0000

/ GROUP 2 OPERATE TEST 26
3624 7300      CLA CLL
3625 1033      TAD K2000      /AC=2000 LINK=0
3626 7660      CLA SZA SNL   /TEST COMBINATION
3627 7440      SZA
3630 7402      HLT      /CLA SZA SNL FAILED, AC AND
                        /LINK SHOULD EQUAL ZERO

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/GROUP 2 OPERATE TEST 31
3651 7300      CLA CLL      /AC=0000 LINK=0
3652 7760      CLA SMA SZA SNL /TEST COMBINATION
3653 7402      HLT          /CLA SMA SZA SNL SHOULD HAVE SKIPPED
                        /AC SHOULD EQUAL 0000
3654 7440      SZA
3655 7402      HLT          /AC NOT ZERO AFTER CLA SMA SZA SNL
                        /AC SHOULD BE 0000 LINK=0

/GROUP 2 OPERATE TEST 32
3656 7320      CLA CLL CML
3657 1050      TAD K3777      /AC=3777 LINK=1
3660 7760      CLA SMA SZA SNL /TEST COMBINATION
3661 7402      HLT          /CLA SMA SZA SNL DID NOT SKIP
                        /AC SHOULD BE 0000 LINK=1
3662 7440      SZA
3663 7402      HLT          /CLA SMA SZA SNL DID NOT CLEAR AC
                        /AC SHOULD EQUAL 0000 LINK=1

/GROUP 2 OPERATE TEST 33
3664 7300      CLA CLL
3665 1034      TAD K4000      /AC=4000 LINK=0
3666 7760      CLA SMA SZA SNL /TEST COMBINATION
3667 7402      HLT          /CLA SMA SZA SNL SHOULD HAVE SKIPPED
                        /AC SHOULD BE 0000, LINK=0
3670 7440      SZA
3671 7402      HLT          /CLA SMA SZA SNL DID NOT CLEAR AC
                        /AC SHOULD EQUAL 0000

/GROUP 2 OPERATE TEST 34
3672 7300      CLA CLL
3673 1050      TAD K3777      /AC=3777 LINK=0
3674 7760      CLA SMA SZA SNL /TEST COMBINATION
3675 7440      SZA
3676 7402      HLT          /CLA SMA SZA SNL FAILED, AC
                        /SHOULD BE ZERO, LINK=0

/GROUP 2 OPERATE TEST 35
3677 7300      CLA CLL      /AC=0000 LINK=0
3700 7410      SKP          /TEST INSTRUCTION
3701 7402      HLT          /SKIP FAILED
                        /AC AND LINK EQUAL ZERO

/GROUP 2 OPERATE TEST 36
3702 7320      CLA CLL CML   /AC=0000 LINK=1
3703 7410      S_KP         /TEST INSTRUCTION
3704 7402      HLT          /SKIP FAILED
                        /AC=0000 LINK=1

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/GROUP 2 OPERATE TEST 37
3705 7320      CLA CLL CML
3706 1050      TAD K3777          /AC=3777 LINK=1
3707 7410      SKP              /TEST INSTRUCTION
3710 7402      HLT              /SKIP FAILED
                               /AC=3777 LINK=1

/GROUP 2 OPERATE TEST 38
3711 7300      CLA CLL
3712 1050      TAD K3777          /AC=3777 LINK=0
3713 7410      SKP              /TEST INSTRUCTION
3714 7402      HLT              /SKIP FAILED
                               /AC=3777 LINK=0

/GROUP 2 OPERATE TEST 39
3715 7200      CLA
3716 1050      TAD K3777          /AC=3777
3717 7710      CLA SPA          /TEST COMBINATION
3720 7402      HLT              /CLA SPA DID NOT SKIP, AC
                               /SHOULD BE ZERO

3721 7440      SZA
3722 7402      HLT              /CLA SPA DID NOT CLEAR AC
                               /AC SHOULD EQUAL ZERO

/GROUP 2 OPERATE TEST 40
3723 7200      CLA
3724 1034      TAD K4000          /AC=4000
3725 7710      CLA SPA          /TEST COMBINATION
3726 7440      SZA
3727 7402      HLT              /CLA SPA FAILED, AC SHOULD
                               /EQUAL 0000

/GROUP 2 OPERATE TEST 41
3730 7240      CLA CMA          /AC=7777
3731 7650      CLA SNA          /TEST COMBINATION
3732 7402      HLT              /CLA SNA DID NOT SKIP
                               /AC SHOULD BE 0000

/GROUP 2 OPERATE TEST 42
3733 7200      CLA              /AC=0000
3734 7650      CLA SNA          /TEST COMBINATION
3735 7440      SZA
3736 7402      HLT              /CLA SNA FAILED
                               /AC SHOULD EQUAL 0000

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/GROUP 2 OPERATE TEST 43
3737 7200      CLA      /AC=0000
3740 7550      SPA SNA   /TEST COMBINATION (AND)
3741 7440      SZA
3742 7402      HLT      /SPA SNA SKIPPED
                        /AC=0000

/GROUP 2 OPERATE TEST 44
3743 7200      CLA
3744 1050      TAD K3777   /AC=3777
3745 7550      SPA SNA   /TEST COMBINATION (AND)
3746 7402      HLT      /SPA SNA FAILED TO SKIP
                        /AC=3777

/GROUP 2 OPERATE TEST 45
3747 7200      CLA
3750 1034      TAD K4000   /AC=4000
3751 7550      SPA SNA   /TEST COMBINATION (AND)
3752 7450      SNA
3753 7402      HLT      /SPA SNA SKIPPED,
                        /AC=4000

/GROUP 2 OPERATE TEST 46
3754 7200      CLA      /AC=0000
3755 7750      CLA SPA SNA /TEST COMBINATION (AND)
3756 7440      SZA
3757 7402      HLT      /CLA SPA SNA FAILED,
                        /AC SHOULD BE 0000

/GROUP 2 OPERATE TEST 47
3760 7200      CLA
3761 1050      TAD K3777   /AC=3777
3762 7750      CLA SPA SNA /TEST COMBINATION (AND)
3763 7402      HLT      /CLA SPA SNA DID NOT SKIP
                        /AC SHOULD BE 0000

3764 7440      SZA
3765 7402      HLT      /CLA SPA SNA DID NOT CLEAR THE AC
                        /AC SHOULD EQUAL 0000

/GROUP 2 OPERATE TEST 48
3766 7200      CLA
3767 1034      TAD K4000   /AC=4000
3770 7750      CLA SPA SNA /TEST COMBINATION (AND)
3771 7440      SZA
3772 7402      HLT      /CLA SPA SNA FAILED
                        /AC SHOULD EQUAL ZERO

3773 7000      NOP
3774 7000      NOP
3775 7000      NOP
3776 7000      NOP
3777 7000      NOP
      4000

```

PAUSE

UUCC

0001

E*U*1

/INSTRUCTION TEST - TAPE 4

/GROUP 2 OPERATE TEST 49

0001 7300

CLA CLL

/AC=5252 LINK=0

0002 1052

TAD K5252

0003 7630

CLA SZL

/TEST COMBINATION

0004 7402

HLT

/CLA SZL DID NOT SKIP

/AC AND LINK SHOULD BE 0

0005 7440

SZA

0006 7402

HLT

/CLA SZL DID NOT CLEAR AC

/AC SHOULD BE ZERO, LINK=0

/GROUP 2 OPERATE TEST 50

0007 7360

CLA CLL CML CMA

/AC=7777 LINK=1

0010 7630

CLA SZL

/TEST COMBINATION (AND)

0011 7440

SZA

0012 7402

HLT

/CLA SZL FAILED, AC SHOULD

/BE 0000, LINK=1

/GROUP 2 OPERATE TEST 51

0013 7300

CLA CLL

0014 1050

TAD K3777

/AC=3777 LINK=0

0015 7530

SPA SZL

/TEST COMBINATION (AND)

0016 7402

HLT

/SPA SZL DID NOT SKIP

/AC=3777 LINK=0

/GROUP 2 OPERATE TEST 52

0017 7320

CLA CLL CML

0020 1050

TAD K3777

/AC=3777 LINK=1

0021 7530

SPA SZL

/TEST COMBINATION (AND)

0022 7450

SNA

0023 7402

HLT

/SPA SZL SKIPPED

/AC=3777 LINK=1

/GROUP 2 OPERATE TEST 53

0024 7300

CLA CLL

0025 1034

TAD K4000

/AC=4000 LINK=0

0026 7530

SPA SZL

/TEST COMBINATION (AND)

0027 7500

SMA

0030 7402

HLT

/SPA SZL SKIPPED

/AC=4000 LINK=0

/GROUP 2 OPERATE TEST 54

0031 7300

CLA CLL

0032 1050

TAD K3777

/AC=3777 LINK=0

0033 7730

CLA SPA SZL

/TEST COMBINATION (AND)

0034 7402

HLT

/CLA SPA SZL SHOULD HAVE SKIPPED

/AC SHOULD BE 0000, LINK=0

0035 7440

SZA

0036 7402

HLT

/CLA SPA SZL DID NOT CLEAR THE AC

/AC SHOULD BE 0000

```

/GROUP 2 OPERATE TEST 55
0037 7320      CLA CLL CML
0040 1050      TAD K3777          /AC=3777 LINK=1
0041 7730      CLA SPA SZL      /TEST COMBINATION (AND)
0042 7440      SZA
0043 7402      HLT              /CLA SPA SZL FAILED
                                /AC SHOULD EQUAL 0000 LINK=1

/GROUP 2 OPERATE TEST 56
0044 7300      CLA CLL
0045 1034      TAD K4000          /AC=4000 LINK=0
0046 7730      CLA SPA SZL      /TEST COMBINATION (AND)
0047 7440      SZA
0050 7402      HLT              /CLA SPA SZL FAILED
                                /AC SHOULD EQUAL 0000 LINK=0

/GROUP 2 OPERATE TEST 57
0051 7300      CLA CLL
0052 1034      TAD K4000          /AC=4000 LINK=0
0053 7470      SNA SZL          /TEST COMBINATION (AND)
0054 7402      HLT              /SNA SZL DID NOT SKIP
                                /AC = 4000 LINK=0

/GROUP 2 OPERATE TEST 58
0055 7320      CLA CLL CML
0056 1034      TAD K4000          /AC=4000 LINK=1
0057 7470      SNA SZL          /TEST COMBINATION (AND)
0060 7420      SNL
0061 7402      HLT              /SNA SZL SKIPPED
                                /AC=4000 LINK=1

/GROUP 2 OPERATE TEST 59
0062 7300      CLA CLL          /AC=0000 LINK=0
0063 7470      SNA SZL          /TEST COMBINATION (AND)
0064 7430      SZL
0065 7402      HLT              /SNA SZL SKIPPED
                                /AC=0000 LINK=0

/GROUP 2 OPERATE TEST 60
0066 7320      CLA CLL CML
0067 1034      TAD K4000          /AC=4000 LINK=1
0070 7670      CLA SNA SZL      /TEST COMBINATION (AND)
0071 7440      SZA
0072 7402      HLT              /CLA SNA SZL FAILED, AC SHOULD
                                /BE 0000, LINK=1

```

```

/GROUP 2 OPERATE TEST 61
0073 7300      CLA CLL
0074 1034      TAD K4000      /AC=4000 LINK=0
0075 7670      CLA SNA SZL    /TEST COMBINATION (AND)
0076 7402      HLT           /CLA SNA SZL DID NOT SKIP
                                /AC SHOULD BE 0000, LINK=0

0077 7440      SZA
0100 7402      HLT           /CLA SNA SZL DID NOT CLEAR AC
                                /AC AND LINK SHOULD BE ZERO

/GROUP 2 OPERATE TEST 62
0101 7300      CLA CLL      /AC=0000 LINK=0
0102 7670      CLA SNA SZL  /TEST COMBINATION (AND)
0103 7440      SZA
0104 7402      HLT           /CLA SNA SZL FAILED, AC SHOULD
                                /BE 0000, LINK=0

/GROUP 2 OPERATE TEST 63
0105 7300      CLA CLL
0106 1050      TAD K3777      /AC=3777 LINK=0
0107 7570      SPA SNA SZL    /TEST COMBINATION (AND)
0110 7402      HLT           /SPA SNA SZL DID NOT SKIP
                                /AC=3777 LINK=0

/GROUP 2 OPERATE TEST 64
0111 7320      CLA CLL CML
0112 1050      TAD K3777      /AC=3777 LINK=1
0113 7570      SPA SNA SZL    /TEST COMBINATION (AND)
0114 7420      SNL
0115 7402      HLT           /SPA SNA SZL SKIPPED
                                /AC=3777 LINK=1

/GROUP 2 OPERATE TEST 65
0116 7300      CLA CLL      /AC=0000 LINK=0
0117 7570      SPA SNA SZL    /TEST COMBINATION (AND)
0120 7430      SZL
0121 7402      HLT           /SPA SNA SZL SKIPPED
                                /AC=0000 LINK=0

/GROUP 2 OPERATE TEST 66
0122 7300      CLA CLL
0123 1034      TAD K4000      /AC=4000 LINK=0
0124 7570      SPA SNA SZL    /TEST COMBINATION (AND)
0125 7430      SZL
0126 7402      HLT           /SPA SNA SZL SKIPPED
                                /AC=4000 LINK=0

```



```

0127 7300
0130 1050
0131 7770
0132 7402

0133 7440
0134 7402

```

/GROUP 2 OPERATE TEST 67
 CLA CLL
 TAD K3777 /AC=3777 LINK=0
 CLA SPA SNA SZL /TEST COMBINATION (AND)
 HLT /CLA SPA SNA SZL DID NOT SKIP
 /AC AND LINK SHOULD BE ZERO
 SZA
 HLT /CLA SPA SNA SZL DID NOT CLEAR AC
 /AC AND LINK SHOULD BE ZERO

```

0135 7320
0136 1050
0137 7770
0140 7440
0141 7402

```

/GROUP 2 OPERATE TEST 68
 CLA CLL CML
 TAD K3777 /AC=3777 LINK=1
 CLA SPA SNA SZL /TEST COMBINATION (AND)
 SZA
 HLT /CLA SPA SNA SZL FAILED, AC SHOULD
 /BE 0000, LINK SHOULD EQUAL ONE

```

0142 7300
0143 1034
0144 7770
0145 7440
0146 7402

```

/GROUP 2 OPERATE TEST 69
 CLA CLL
 TAD K4000 /AC=4000 LINK=0
 CLA SPA SNA SZL /TEST COMBINATION (AND)
 SZA
 HLT /CLA SPA SNA SZL FAILED, AC SHOULD
 /BE 0000, LINK SHOULD EQUAL ZERO

```

0147 7300
0150 7770
0151 7440
0152 7402

```

/GROUP 2 OPERATE TEST 70
 CLA CLL /AC=0000 LINK=0
 CLA SPA SNA SZL /TEST COMBINATION (AND)
 SZA
 HLT /CLA SPA SNA SZL FAILED, AC AND
 /LINK SHOULD BE ZERO,

```

0153 7200
0154 1052
0155 7604
0156 7040
0157 7440
0160 7402

```

/GROUP 2 OPERATE TEST 71
 CLA
 TAD K5252 /AC=5252
 CLA OSR /TEST COMBINATION
 CMA
 SZA
 HLT /CLA OSR FAILED
 /AC SHOULD BE 0000

```

/GROUP 2 OPERATE TEST 72
0161 7200      CLA
0162 1034      TAD K4000      /AC=4000
0163 7504      SMA OSR      /TEST COMBINATION
0164 7402      HLT      /SMA OSR FAILED TO SKIP
                        /AC SHOULD BE 7777

0165 7040      CMA
0166 7440      SZA
0167 7402      HLT      /SMA OSR FAILED
                        /AC SHOULD BE 0000

/GROUP 2 OPERATE TEST 73
0170 7200      CLA      /AC=0000
0171 7444      SZA OSR    /TEST COMBINATION
0172 7402      HLT      /SZA OSR FAILED TO SKIP
                        /AC SHOULD BE 0000

0173 7040      CMA
0174 7440      SZA
0175 7402      HLT      /SZA OSR FAILED,
                        /AC SHOULD BE 0000

0176 7000      NOP
0177 7000      NOP
0200 7000      NOP
0200 4200

*4200
/GROUP 2 OPERATE TEST 74
4200 7320      CLL CML CLA /LINK=1
4201 7424      SNL OSR    /TEST COMBINATION
4202 7402      HLT      /SNL OSR FAILED TO SKIP
                        /AC SHOULD BE 7777

4203 7040      CMA
4204 7440      SZA
4205 7402      HLT      /SNL OSR FAILED,
                        /AC SHOULD BE 0000

/GROUP 2 OPERATE TEST 75
4206 7300      CLA CLL
4207 1050      TAD K3777    /AC=3777 LINK=0
4210 7764      CLA SMA SZA SNL OSR /TEST COMBINATION
4211 7450      SNA
4212 7402      HLT      /CLA SMA SZA SNL OSR FAILED,
                        /AC SHOULD BE 7777, LINK=0

4213 7040      CMA
4214 7440      SZA
4215 7402      HLT      /CLA SMA SZA SNL OSR FAILED
                        /AC SHOULD EQUAL ZERO

/GROUP 2 OPERATE TEST 76
4216 7200      CLA      /AC=0000
4217 7414      SKP OSR    /TEST COMBINATION
4220 7402      HLT      /SKP OSR DID NOT SKIP
                        /AC SHOULD BE 7777

4221 7040      CMA
4222 7440      SZA
4223 7402      HLT      /SKP OSR FAILED
                        /AC SHOULD EQUAL ZERO

```

```

/ GROUP 2 OPERATE TEST 77
4224 7200      CLA      /AC=0000
4225 7514      SPA OSR   /TEST COMBINATION
4226 7402      HLT      /SPA OSR DID NOT SKIP
                        /AC SHOULD BE 7777

4227 7040      CMA
4230 7440      SZA
4231 7402      HLT      /SPA OSR FAILED,
                        /AC SHOULD BE 0000

/ GROUP 2 OPERATE TEST 78
4232 7200      CLA
4233 1031      TAD K0400   /AC=0400
4234 7454      SNA OSR   /TEST COMBINATION
4235 7402      HLT      /SNA OSR DID NOT SKIP
                        /AC SHOULD BE 7777

4236 7040      CMA
4237 7440      SZA
4240 7402      HLT      /SNA OSR FAILED
                        /AC SHOULD BE 0000

/ GROUP 2 OPERATE TEST 79
4241 7300      CLA CLL    /LINK=0 AC=0000
4242 7434      SZL OSR   /TEST COMBINATION
4243 7402      HLT      /SZL OSR DID NOT SKIP
                        /AC SHOULD BE 7777

4244 7040      CMA
4245 7440      SZA
4246 7402      HLT      /SZL OSR FAILED
                        /AC SHOULD BE 0000

/ GROUP 2 OPERATE TEST 80
4247 7300      CLA CLL
4250 1050      TAD K3777   /AC=3777 LINK=0
4251 7774      CLA SPA SNA SZL OSR /TEST COMBINATION (AND)
4252 7402      HLT      /ABOVE MESS DID NOT SKIP
                        /AC SHOULD BE 7777

4253 7040      CMA
4254 7440      SZA
4255 7402      HLT      /CLA SPA SNA SZL OSR FAILED
                        /AC SHOULD BE 0000

```

```

/AND TEST 1
4256 7200      CLA
4257 0051      AND K7777
4260 7440      SZA
4261 7402      HLT
/AND FAILED AC SHOULD
/BE 0000

/AND TEST 2
4262 7240      CLA CMA
4263 0020      AND K0000
4264 7440      SZA
4265 7402      HLT
/AND FAILED
/AC SHOULD EQUAL 0000

/AND TEST 3
4266 7320      CLA CLL CML
4267 1051      TAD K7777
4270 0051      AND K7777
4271 7040      CMA
4272 7430      SZA
4273 7440      SZA
4274 7402      HLT
/AND FAILED AC SHOULD BE
/0000, LINK SHOULD EQUAL ONE

/AND TEST 4
4275 7300      CLA CLL
4276 1053      TAD K2525
4277 0052      AND K5252
4300 7420      SNL
4301 7440      SZA
4302 7402      HLT
/AND FAILED AC SHOULD BE
/0000, LINK SHOULD BE 0

/AND TEST 5
4303 7300      CLA CLL
4304 1052      TAD K5252
4305 0053      AND K2525
4306 7420      SNL
4307 7440      SZA
4310 7402      HLT
/AND FAILED AC SHOULD BE
/0000, LINK SHOULD BE 0
```

```

4311 7300
4312 1035
4313 0052
4314 7041
4315 1052
4316 7430
4317 7440
4320 7402

/AND TEST 6
CLA CLL
TAD K7776
AND K5252
CIA
TAD K5252
SZL
SZA
HLT

/AC=7776 LINK=0
/TEST INSTRUCTION
/AC=2526
/AC=0000 LINK=1

/AND FAILURE, AC SHOULD BE
/0000, LINK SHOULD BE ONE

4321 7300
4322 1053
4323 0053
4324 7041
4325 1053
4326 7430
4327 7440
4330 7402

/AND TEST /
CLA CLL
TAD K2525
AND K2525
CIA
TAD K2525
SZL
SZA
HLT

/AC=2525 LINK=0
/TEST INSTRUCTION
/AC=5253
/AC=0000 LINK = 1

/AND FAILED, AC SHOULD BE
/0000, LINK SHOULD BE ONE,

4331 7200
4332 1351
4333 7001
4334 3351
4335 1351
4336 7640
4337 5147
4340 1352
4341 3351

/CHECK FOR BELL
CLA
TAD BLCNT
IAC
UCA BLCNT
TAD BLCNT
SZA CLA
JMP START+3
TAD BLCNT
UCA BLCNT

4342 1350
4343 6046
4344 6041
4345 5344
4346 6042
4347 5147

/RING BELL
TAD BEL
TFS
TSF
JMP , -1
ICF
JMP START+3

4350 0207
4351 7600
4352 7600

BEL, 0207
BLCNT, -200
BLCNT, -200

```

\$

THERE ARE 6 ERRORS

SYMBOL TABLE

BEL	4350
BLCNT	4351
BLCON	4352
CLL1	0447
CLL11	0453
CMLT1	0457
E	4000
HALT	0006
K0000	0020
K0001	0021
K0002	0022
K0003	0064
K0004	0023
K0007	0065
K0010	0024
K0017	0067
K0020	0025
K0037	0070
K0040	0026
K0067	0066
K0077	0071
K0100	0027
K0177	0072
K0200	0030
K0377	0073
K0400	0031
K0777	0074
K1000	0032
K1777	0075
K2000	0033
K2525	0053
K3777	0050
K4000	0034
K5252	0052
K5777	0047
K6000	0054
K6777	0046
K7000	0055
K7377	0045
K7400	0056
K7577	0044
K7600	0057
K7677	0043
K7700	0076
K7737	0042
K7740	0060
K7757	0041
K7760	0061
K7767	0040
K7770	0062
K7773	0037
K7774	0063
K7775	0036

SYMBOL TABLE

K/776	0035
K/777	0051
NOOP	0007
START	0144
U	3056

SYMBOL TABLE

HALT	0006
NOOP	0007
K0000	0020
K0001	0021
K0002	0022
K0004	0023
K0010	0024
K0020	0025
K0040	0026
K0100	0027
K0200	0030
K0400	0031
K1000	0032
K2000	0033
K4000	0034
K/7/6	0035
K/775	0036
K/773	0037
K/767	0040
K/757	0041
K/737	0042
K/677	0043
K/577	0044
K/377	0045
K0777	0046
K5777	0047
K3777	0050
K/777	0051
K5252	0052
K2525	0053
K0000	0054
K/000	0055
K/400	0056
K/600	0057
K/740	0060
K/760	0061
K/770	0062
K/774	0063
K0003	0064
K0007	0065
K0067	0066
K0017	0067
K0037	0070
K0077	0071
K0177	0072
K0377	0073
K0777	0074
K1777	0075
K/700	0076
START	0144
ULL1	0447
ULL11	0453
UMLT1	0457

SYMBOL TABLE

U	3056
E	4000
BEL	4350
BLCNT	4351
BLCUN	4352

